



FRIDAY, OCTOBER 27, 1876.

THE UNITED STATES INTERNATIONAL EXHIBITION.

THE RECEIPT OF GOODS—TERMINAL SERVICE.

We interrupt our account of the exhibit of signals to make place for the following description of the handling of freight at the Exhibition, by Mr. D. Torrey, Chief of the Bureau of Transportation, which will form a part of his official report:

The labor of preparing for an exhibition of such magnitude is attended by many perplexing uncertainties; and in no department of the general work are these more manifest than in

As to the quantity of goods to be received, the result of a general survey of the situation in 1875 was to estimate the probable requirement of facilities of handling the exhibits to be for forty thousand tons net of them; but to meet contingencies it was decided to prepare to handle even more, if necessary; or, in other words, to have an expansive arrangement. It will be understood that such requirements depend more upon the time within which goods may arrive than the quantity of them. The disposition of a thousand car-loads of articles may be a trifling matter if spread over ten days' time, which, if to be handled within three days' time, might over-tax every facility provided for the purpose.

The prominent features of the plan adopted, and their relative importance, are as follows: *First*, The service of an organized body of men, known as the terminal force, common to the whole work, who, to the exclusion of exhibitors, their agents and commissioners, should unload cars, place goods on the space to which directed, and perform all related services. *Second*, The provision of separate sidings for limited sections of

Pennsylvania Railroad, to various places within the grounds. The movement of freight cars over these tracks was entirely independent of the agents of the Pennsylvania Railroad, who transferred the loaded cars, locked and sealed, across Elm avenue, as in ordinary business such cars when en route are transferred from one railroad company to another, and at this point the service of the terminal force commenced.

It was desirable that goods in cars should be transported to as near their destination as possible, so there were provided many places of delivery—sidings within the grounds. This multiplication and distribution of sidings, by dividing the work, permitted a large increase of the laboring force without introducing confusion, thereby securing the feature of expansion which it was foreseen might become of the utmost importance if the receipt of the bulk of the exhibits should be crowded into the few days immediately preceding the opening of the Exhibition.

So much depended upon the accuracy of the directions placed on packages that the printed labels and tags were filled in to

NOTE. The railroad tracks used in receiving goods are represented by heavy lines; the narrow-gauge passenger railroad is shown by dotted lines, and horse railroads by fine continuous lines. The figures indicate the platforms and sidings at which cars were unloaded.

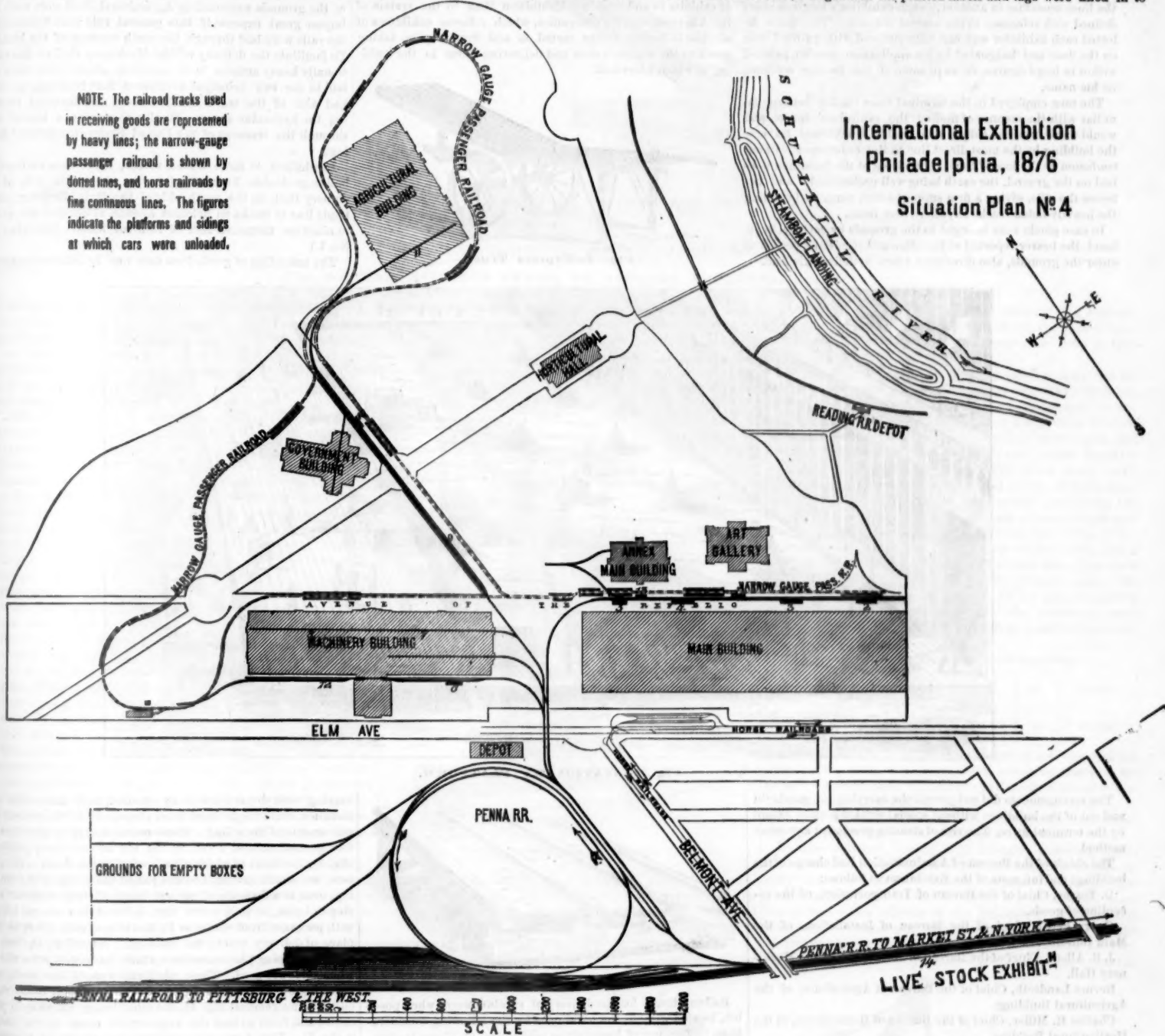


Fig. 1.

that of transportation, very little being known in advance of the gross quantity of goods, or of the characteristics of articles of exceptional weight or dimension which will be received, which information has great value in determining the character and extent of facilities to be provided.

With regard to circumstances attending the Exhibition of 1876, it is to be remembered that there was a tardiness on the part of Americans in applying for exhibiting space; so that, at a date when all the buildings to be erected should have been in process of construction, not over one-fourth of those Americans who finally became exhibitors had made application for the privilege. At that time the methods of the Bureau of Transportation had to be determined and be adapted to requirements varying from a condition in which the principal buildings might be not fully occupied to one, as finally proved to be the case, in which the park would be crowded with annexes and supplementary buildings. The problem was to provide the best method for receiving an indefinite but very large quantity of goods, comprising articles and packages of unknown weights, dimensions and peculiarities, the service to be performed within an unstated but certainly limited period of time.

the exhibiting space or portions of the enclosure. *Third*, Constructing these sidings so that the use of any one would not interfere with the running of cars to and from any other. *Fourth*, Freight platforms to be built to the height of the car floors and arranged for the use of trucks for transporting goods from the cars to their destination.

On arrival at the Centennial station of the Pennsylvania Railroad, cars were marked for the siding within the Exhibition at which they were to be unloaded, and they were assorted on a series of tracks, bringing together cars for the same siding. As required, an engine would draw from these distributing tracks a lot of cars for a particular place within the Exhibition, and place them to be unloaded. Through the service of a telegraph line there was announced instantly at the central office information when their unloading was completed, enabling the management to replace the cars with others without an unnecessary loss of time, or, if they so wished, to transfer the working force to some place where its services were needed.

The railroad tracks, constructed in connection with the Exhibition and under the control of its authorities, extended from Elm avenue, the point of connection with the tracks of the

meet the requirements of each lot of goods, and mailed to American exhibitors, with explicit instructions how to use them. It was intended that this should be done with foreign exhibitors by the respective national commissions. The as-

TO THE
DIRECTOR-GENERAL
OF THE
U. S. CENTENN'L COMMISSION,
INTERNATIONAL EXHIBITION OF 1876,
AT PHILADELPHIA.

MAIN BUILDING.

Siding No. 3.	Exhibitor,.....
Location,.....N. 65.....	.....J. L. Mott Iron Works....
No. of Application, }2471.....	Address,.....
Weight,.....486.....Pounds.	.....New York.....
	No. } Serial, .....8.....
	Packages, } Total, .....64.....

signments of space in the foreign sections being determined and marked on plans of the buildings by the commissioners,



Fig. 2—Wagon Truck.

they only could give accurate shipping directions for their different exhibitors. These labels or tags, with the manner of filling, will be understood from the preceding copy of one.

The location in the building to which an article was addressed was known from the directions on the labels, being in accordance with the system of designating columns and the plan of marking off spaces on the floor. Each column within the building being lettered and numbered; the letters designating the lines of columns in one direction, and the numbers the lines crosswise in another,—each exhibitor's location being defined with reference to the nearest column. The space allotted each exhibitor was carefully outlined with painted lines on the floor and designated by his application number painted within in large figures, or, as in some of the foreign sections, by his name.

The men employed in the terminal force readily became familiar with the manner of finding the exhibitors' space, and would move from the siding with loaded trucks and traverse the building by the most direct line to the exact spot without confusion or the loss of time. The floors of the buildings were laid on the ground, the earth being well packed under and between the sills, giving a firm support which permitted running the heavily-laden trucks anywhere over them.

In case goods were brought to the grounds by cartage or in hand, the bearer reported at the office and received a permit to enter the grounds, also directions where to deliver his load.

tained from the customs officer in charge, he being responsible as storekeeper for the customs duties on them.

Only the Adams Express Company, of the several companies conducting express business, opened an office at the Exhibition. During the continuance of the Exhibition there has been through this agency a daily delivery of several wagon-loads of small packages of supplies delivered to exhibitors throughout the grounds. It would be impossible to devise any more convenient and satisfactory manner of shipping packages of exhibits to and from an Exhibition than by the system of the American express companies, which relieves exhibitors of all care in having things carted to and from depots, taking goods at the shipper's door and delivering them in the building to which addressed.



Fig. 4—Express Truck.



Fig. 3—Warehouse Truck.

track there must be a second track past the first siding to permit the use of both without interference. Exhibitors would, if deprived of the use of the floors in the avenues and passage-ways, find themselves seriously embarrassed in erecting show-cases, unpacking exhibits, etc., operations which, to a considerable extent, must be conducted thereon. Governed by these considerations, the rule generally followed was to locate tracks without the Exhibition buildings.

The exceptions were as follows: The topographical features of the grounds surrounding Agricultural Hall were such as to impose great expense if this general rule were followed, and the rails were laid through the south transept of the building. To facilitate the delivery within Machinery Hall of the exceptionally heavy articles to be received, single-track roads were laid in the two principal avenues of that building, use being had also of the track which crossed the transept connecting the hydraulic annex. Finally, there was a line of track through the transept of the United States Government building.

In addition to these tracks within, there were without the buildings double lines of railway on the south side of Machinery Hall, on the north side of the Main Building, and a triple line of tracks on Belmont avenue, altogether amounting to nineteen thousand feet of railroad track. (See plan, fig. No. 1.)

The unloading of goods from cars was by different methods,

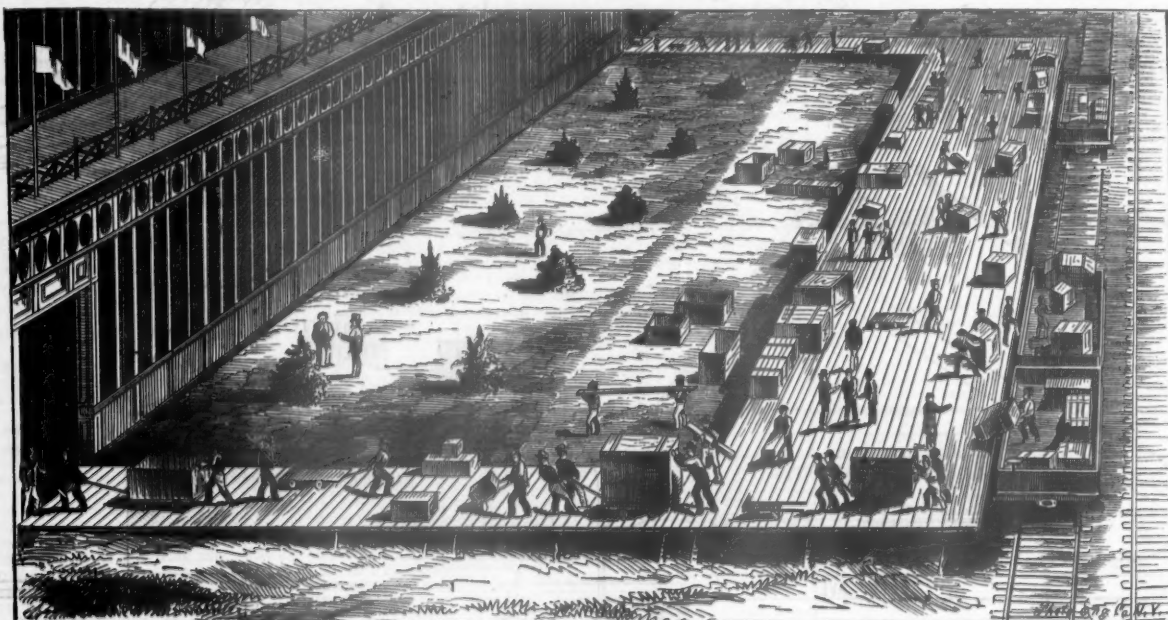


Fig. 5—STATIONARY PLATFORM.

The arrangements did not permit the carrying of goods in and out of the buildings without special written permit, except by the terminal force. The risk of stealing precluded any other method.

The chiefs of the Bureau of Administration had charge of the buildings and interests of the Exhibition as follows:

D. Torrey, Chief of the Bureau of Transportation, of the reception of goods.

Henry Pettit, Chief of the Bureau of Installation, of the Main Building.

J. S. Albert, Chief of the Bureau of Machinery, of the Machinery Hall.

Burnet Landreth, Chief of the Bureau of Agriculture, of the Agricultural Building.

Charles H. Miller, Chief of the Bureau of Horticulture, of the Horticultural Building.

John Sartain, Chief of the Bureau of Fine Arts, of the Art Galleries.

The Chief of the Bureau of Transportation receipted to the railroad companies for the goods brought by them. They were placed by the terminal force on the space allotted to the exhibitor, when the chief of the bureau in charge of the building receipted to the Bureau of Transportation for and thereby became custodian of them. Permits for the reception of goods and material were issued by the Bureau of Transportation, permits for removing them by the officers of the bureau in charge of the building. If articles or packages to be removed were in the foreign section of the Exhibition, a permit was ob-

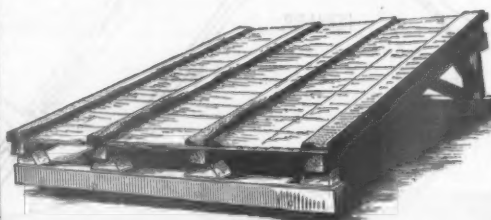


Fig. 6—Portable Platform.

Railway tracks for the delivery of exhibits were, when possible, located without the buildings, for the following considerations: The use of locomotives within the buildings is objectionable from the increased risk of accidental fires which they can so easily communicate to packing material, and from the annoyance of smoke and cinder, which might damage delicate fabrics being unpacked and displayed. The location of tracks within the buildings also necessitated devoting almost exclusively to their use a much larger part of the floor than can be kept for avenues and passage-ways, and which if so taken is unavailable for other important requirements. The least width of space of any value for tracks must be of the width of the car body, with the additional width of space on which to handle goods as unloaded, without trespassing upon the locations of exhibitors, and if there are two sidings on one line of

varying with the articles to be handled, and, also, with the facilities which might be at hand prepared for the general requirements of the siding. These methods may be described in four general classes: First, By the aid of stationary platform (fig. 5), the floors of which were level with the floors of railway cars, and which extended to and joined the floors of the building, even to a distance of several hundred feet, without any step or break, so that trucks (figs. 2, 3 and 4) were run loaded with packages from within or by the side of cars direct to the place of delivery within the building. Second, By the use of portable sloping platforms down which packages were slid as when skids are used. These platforms were of two kinds, one requiring a package to be lifted from the platform to the wagon-truck for removal (fig. 6), the other being cut away in the centre and front so that the wagon-truck could be run under it (fig. 7). This form was specially serviceable in handling very heavy articles, as, when the lower edge of such articles rested on the truck, the workmen drew the truck forward, and in so doing loaded the package. Third, By lifting with cranes, shears or hoists; and Fourth, By the use of skids and hydraulic jacks.

The stationary platforms referred to were built on simple trestles of white pine, shown in fig. No. 8, a large number of which were made in advance of use, and, being uniform in construction, they were available for all platforms to be built.

They were placed on three-inch plank used for sills, and set four or five feet apart, centre to centre. For flooring, three-inch planks were spiked over them, completing the platform.

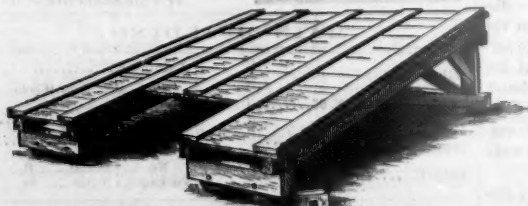


Fig. 7—Portable Platform No. 2.

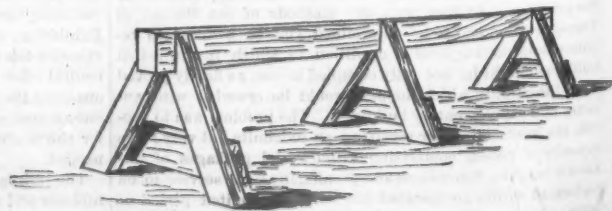


Fig. 8—Trestle.

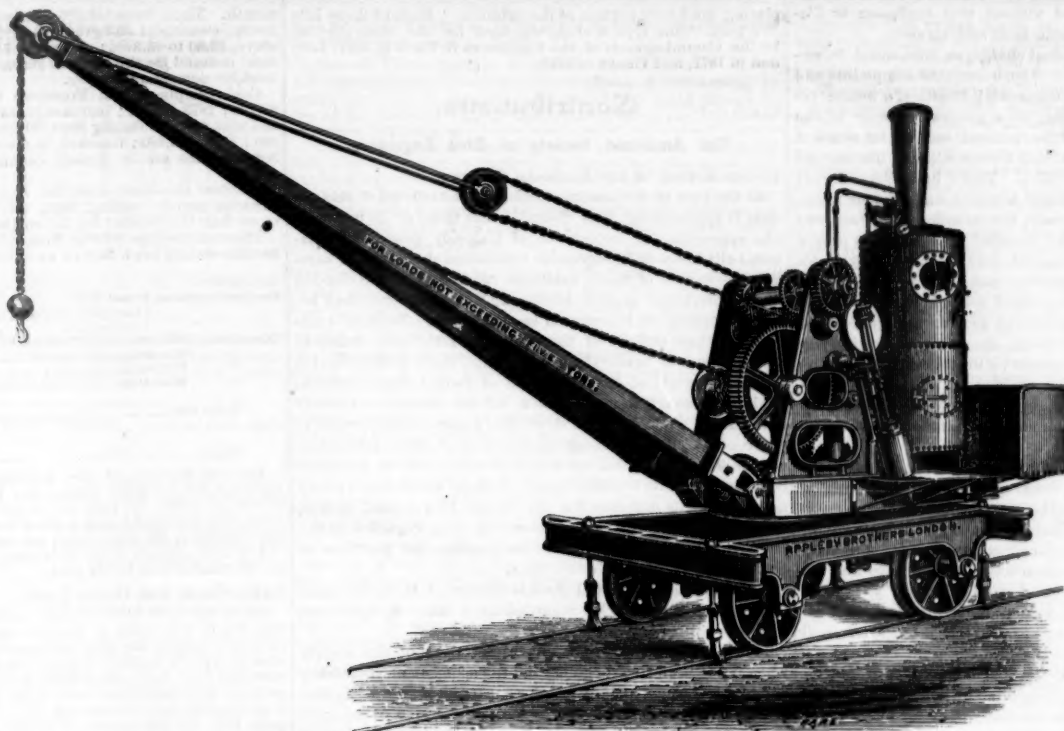


Fig. 9—STEAM RAILROAD CRANE, BY APPELBY BROTHERS, LONDON.

This construction of platforms admitted of their quick removal before the opening of the Exhibition, and will of their rapid and cheap reconstruction at the close. The portable platforms were framed of southern pine scantling, four by four, and covered with one-and-a-half-inch boards, also of southern pine, laid crosswise, with like boards over these laid down the slope and answering for slideways.

The original plan of operations contemplated the use of tramways in the passage-ways of Machinery Hall, with small turntables at the points where they intersected the railway tracks at the side and within the building, to facilitate the transfer of locomotive cranes to different places, and the moving of the trucks fitted thereto loaded with exceptionally heavy articles; but the very favorable results attained with wagon-trucks (fig. 2) at the commencement of operations led to an abandonment of the plan. The two locomotive cranes of Messrs. Appleby Bros., London (fig. 9), were kept during the receipt of goods as stationary cranes (with only two or three removals), transferring articles from cars to wagon-trucks which were hauled by laborers to the place of delivery. There was also erected a ten-ton stationary steam-crane at siding No. 12, where it proved a valuable aid in transferring heavy articles from cars and wagons to wagon-trucks to be hauled into the building, or from cars to wagons for transportation to parts of the Exhibition grounds not accessible by railroad, the crane being placed so that the jib could swing over cars on both lines of track and also over the roadways and platform both sides of these. In addition to the above-mentioned cranes there was the portable hoist (fig. 10), which lifted articles of three or four tons weight and held them in suspension until hauled to the place of delivery. In the grounds the Aveling & Porter road engine, with a crane attached (fig. 11), rendered valuable and efficient service, as with the use of the wagons it both handled and transported goods in the performance of its service.

The shear spars were rough bodies of pine-trees, equipped with common falls and tackle; they were generally set straddle the railroad tracks, and in use held their loads suspended until the car was pulled away and replaced with a wagon-truck, to which the article was lowered, and as before transported to the place of delivery.

Special mention, to any great extent, of the manner of hand-

ling particular articles is unnecessary. Several locomotives exhibited at considerable distances from the line of track were run to their positions over a portable track constructed in sections. Very heavy cannon were lifted with hydraulic jacks, blocked up, and pushed over skids into position. Large cases of plate glass which had to be kept on edge were set in a frame, which traveled over loose rollers (fig. 12).

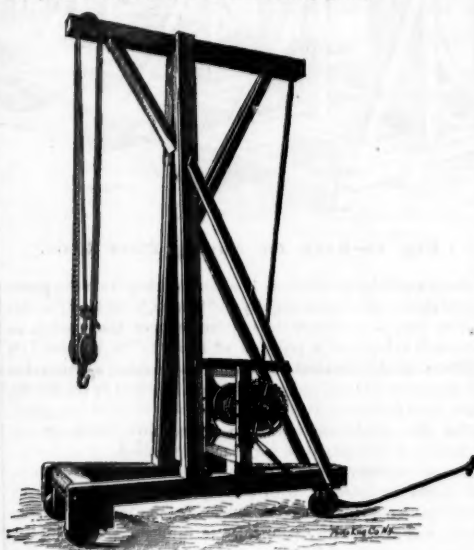


Fig. 10—Portable Hoist.

The Live-stock Exhibit is on grounds formerly used as a stock-yard, adjoining the down track of the main line of the Pennsylvania Railroad. The surface of the field is the height above the level of the rails of a car floor, and bounded by a retaining wall, built to facilitate unloading stock-cars, as formerly used. The arrangement meets every requirement of our

service; and to enable us to use it, the officers of the Pennsylvania Railroad have reserved for this purpose the track in front of the grounds, running their trains over other lines of rails during such use.

The handling and storage of empty packing-cases was included in the terminal service. They were taken from the buildings to the sidings, often by returning empty trucks, loaded on empty cars, and hauled to a neighboring field for storage in sheds; these sheds were assigned to countries, and the cases placed therein were registered and labeled, to enable any particular ones to be found. The sheds were rough structures, and only those enclosed that contained particularly valuable cases. They were in four parallel rows along two lines of railroad track, with an aggregate capacity of one million three hundred and sixty thousand cubic feet. They differed in size, were sixteen feet high, thirty-two feet wide, and of a length which was some multiple of sixteen feet. The sheds were numbered, and within each one the sections, sixteen feet square, were designated by letters. All the cases in each of these sections were registered, so that the location of every case was known with sufficient precision to answer all practical purposes.

The following diagram illustrates the arrangement:

F	E	D	C	B	A	NORTH.
F	E	D	C	B	A	SOUTH.

The total number of empty cases measured and receipted for, placed in the sheds, was about 40,000, which number does not include the very large number of smaller cases placed within the large ones as permitted, and which was done by many exhibitors to an extent that made the cases heavier when stored as empty than when packed with goods.

In some instances, usually with foreign exhibitors, goods were forwarded to the Exhibition without complying with the regulations relating thereto. These irregularities always brought trouble and expense to the exhibitor, and occasioned many annoyances to the officers of the Exhibition. They served, however, by comparison with the excellent working of the service in other cases, to prove the value of the plans adopted, by which the enormous quantity of goods sent to an exhibition



Fig. 11—A-VELING & PORTER'S LOCOMOTIVE CRANE ENGINE.

can be satisfactorily handled without that confusion or disorder thought to be inseparable from such service.

The collection of the terminal charge, as announced in circular No. 142, was the subject of such frequent complaints and misrepresentations that the Centennial Board of Finance resolved to cancel it and assume, as a general expense of the Exhibition, the entire cost of the terminal service for which it was to pay, and they also directed the refunding of the charges already collected (VII. and VIII.). There had been collected \$11,879.04 on one thousand three hundred and thirteen manifests when this change was made, the refunding of which was commenced July 5, 1876. The terminal charge was a proper one to collect, and was canceled only because it was determined to let nothing interfere with the success of the Exhibition which the managers could control. It grew out of the plan of having a terminal force to receive and place upon their space the goods of exhibitors, an arrangement for the purpose which experience proves to be the best yet tried. The trouble, expense, and confusion avoided by this manner of receiving exhibits over any previously tried justifies its arbitrary enforcement at an exhibition of such magnitude as this.

GENERAL OBSERVATIONS.

Arrangements for receiving goods at such large exhibitions must be determined mainly from special conditions, created by peculiarities of location and business customs of the country. The problem should be considered by an expert at the very inception of the enterprise, and all railroad tracks needed to facilitate the rapid and cheap construction of buildings and the making of general preparations should be located so as to be available in handling exhibits without incurring additional expense for changing their location to adapt them to the terminal service.

Experience confirms the anticipated advantages of having the terminal force under a single administration. That the expense of this service should be cheerfully paid for by those for whom the work is done is undeniable; yet it will be complained of by indiscriminating and selfish exhibitors, and as a matter

placing the heavy portion of the exhibits. Each of them lifts five tons. This type of crane was used for the same purpose by the Commissioners of the Exhibition in Paris in 1867, London in 1871, and Vienna in 1873.

Contributions.

The American Society of Civil Engineers.

TO THE EDITOR OF THE RAILROAD GAZETTE:

As the time of the annual election for the officers of this society is approaching, it is desirable that those of its members who appreciate the importance of jealousy guarding its national character and progressive aspirations should weigh carefully the names of those available candidates whose election would guarantee greater energy and broader views than belong to a policy of letting well enough alone. Without criticizing the past policies of the Society, which have infinitely more in them to praise than to condemn, there is still about it a little too much of the icicle kind of formal dignity which, while well enough in its way, is a terrible damper on hearty enthusiasm, when it settles down into a monotonous conservative routine. To be thoroughly American it must take active part on the public questions within its scope, and in a manner consistent with its scientific aims. It must wield such a policy as will make its influence felt far beyond professional circles, and cause its certificate of membership to be regarded by the employing public as a necessary qualification for positions of trust and professional responsibility.

So far as the Presidential chair is concerned, there are many reasons why it should be regarded in a different light from what has ruled heretofore.

This is the first year since the organization of the society when it has been free to go beyond the sponsors of its infancy and the godfathers of its youth for a candidate for its highest office. It was meet and proper to honor those men of the early days for their faithfulness, when it required an optimist's view of the future to stand by the bantling of 1852. Now that the last

month. There were 154,000 tons sold at the following prices: Lump, steamboat and grate, \$2.92½ to \$3 per ton; egg, \$3.10; stove, \$3.80 to \$3.92½; chestnut, \$3.75 to \$3.87½. There was most demand for the last two sizes, which are those generally used for domestic purposes.

Coal receipts at San Francisco for September were: 1876, 83,700; 1875, 52,100; increase 31,600 tons, or 60.7 per cent. For the nine months ending Sept. 30 the receipts were: 1876, 453,000; 1875, 396,400; increase, 56,600 tons, or 14.3 per cent. The largest gains are in British Columbia, Seattle and English coal.

The coal shipments from the Seattle, Wash. Ter., mines for the nine months ending Sept. 30 were 75,646 tons. This is more than the product for the entire year 1875.

The coal tonnage of the Pennsylvania Railroad for the nine months ending Sept. 30 was as follows:

	Tons.
Anthracite.....	637,315
Semi-bituminous, Broad Top.....	118,364
" " Clearfield and Snow Shoe.....	906,774
" " Cumberland.....	97,214
Bituminous, Galitzin and Mountain Region.....	157,147
" " Westmoreland Region.....	619,977
" " Pittsburgh Region.....	221,471
" " West Penn. Div., and Southwest Penn. Br.....	196,404

Total coal.....2,853,666

Coke.....589,987

Total.....3,443,653

The coal tonnage of the Belvidere Division, Pennsylvania Railroad, for the week ending Oct. 14 was: 1876, 27,377; 1875, 27,002; increase, 375 tons, or 1.4 per cent. Actual shipments from Coal Port and South Amboy were: 1876, 23,294; 1875, 23,026; increase, 268 tons, or 1.2 per cent.

The coal tonnage of the Columbus & Hocking Valley Railroad for September was 76,164 tons.

Lake, Canal and Ocean Rates.

There has been little change. Corn from Chicago to Buffalo, 4½ to 4¾ cents a bushel; wheat, 5 cents. Milwaukee rates are usually the same as from Chicago. Canal rates have also been quite steady: 8 to 8½ cents per bushel wheat, 7½ for corn and 6 for oats from Buffalo to New York. For some weeks past the fluctuations in ocean rates have been inconsiderable. Last Tuesday quotations from New York were: Grain to Liverpool, 7½d. by rail and 8d. by steam; grain by rail to Cork for orders, 9d.; cotton by rail to Liverpool, 5-16d. per pound; bacon by steam to Liverpool, 35s. per ton.

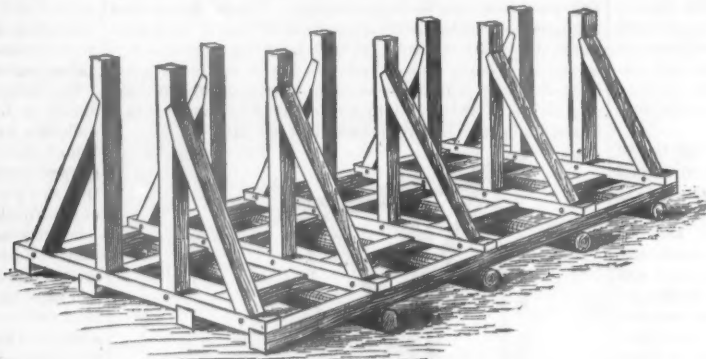


Fig. 13—Rack for Moving Plate Glass.

of policy may be assumed as a general expense of an exhibition rather than an undertaking to collect it. But should its collection be decided upon in any case, it will, under circumstances like those experienced here, be best to admit free everything brought to the exhibition previous to a date some weeks in advance of the opening; to charge the determined rate from then to the date appointed for limiting the receipt of goods, and to collect double rates on all things brought afterwards.

It is clear that goods should not be shipped to an exhibition by any one, native or foreign, until the shipper is supplied with address labels, designating with precision the place of delivery, and that commissioners should not issue these labels until the space on which the exhibits are to be displayed is definitely determined. The failure to do this by the commissioners of some of the foreign countries participating in this Exhibition was the occasion of more confusion in the reception of goods than all other causes combined.

STEAM RAILROAD CRANE.

We add to the above paper by Mr. Torrey the following description of the Messrs. Appleby Bros.' cranes referred to above (fig. 9). These machines, though extensively used in Europe, have been unknown in this country, but are well worth examination by railroad men. In workmanship and in convenience of arrangement and in the facilities which they afford for handling freight, they are certainly very far ahead of any similar cranes used here. The following description is copied from the descriptive circular of the manufacturers:

"The carriage is of wrought iron, planked on the upper side with timber, and mounted on wrought-iron permanent-way wheels, with axles, axle-boxes and guards, springs, buffers, draw-bars and springs, coupling and safety-chains, brake, etc. "All motions, namely, lifting, turning, altering radius, and traveling, are performed by a pair of direct-acting steam cylinders placed slightly at an incline, one outside each side frame. The crank-pins are fitted into balanced disc plates; each cylinder has link reversing gear and the piston rods are guided by blocks working in bored guides cast to the cylinder covers. The post is of wrought iron turned to fit the revolving bed which carries the side frames. The feed-water tank and vertical boiler are carried from the revolving bed, and are placed at such a distance behind the post as to form some counterbalance to the load to be lifted. The lifting power is conveyed from the crank shaft to the chain barrel by means of spur gear, and the load may be lowered by reversing the engines or by the brake. The turning motion is obtained through double friction clutches, and the crane may be moved in either direction simultaneously with any other operation; this motion being performed by driving the friction roller under the jib instead of through toothed gear on the carriage, the risk of breakage is greatly reduced. The derrick motion is obtained by a worm and tangent-wheel on the chain-barrel, the worm locking the jib in any position. The traveling motion is conveyed from the crank shaft to both axles by a train of shafts and bevel wheels, one shaft passing down the centre of the post.

"The two cranes exhibited were employed for unloading and

of those available gentlemen is about retiring from the presidential chair, with all its dignity and honors, it certainly seems a fitting time to so modify the requirements of the position as to cause it to become a position of honor to be bestowed on members of the greatest reputation and service, a reputation that should be at least national, be he a resident of the North, South, East or West. It is true such a treatment of the presidential office would remove it from an executive management, a difficulty, if difficulty it is, very easily remedied.

The real executive work would fall upon the vice-presidents, who would be selected with corresponding care, and they should be men of ideas, fertile in devising new methods of usefulness, and gifted with the faculty of infusing spirit and life into whatever they undertake. There is no doubt but what the society does contain such material among its available local membership, and it is the duty of members purposing to attend the annual meeting to weigh well the requirements of the office, and see to it that they are properly filled. Under such an arrangement it would be fitting for the President to preside over the annual convention and prepare a studied address for that occasion, a policy that would be much more dignified and impressive upon the outside public than the present custom of the society.

The above change in the policy of the American Society of Civil Engineers, so far as relates to the presidential office, is suggested as one that would be productive of most excellent results and lend additional strength to its national bond.

Uniform Size of Passes.

LITTLE ROCK, Ark., Oct. 15, 1876.

TO THE EDITOR OF THE RAILROAD GAZETTE:

As the season for printing annual passes has again arrived, I beg to suggest to those having this matter in charge that they adopt a uniform size, and make it known through the *Gazette*. Three and three-quarters by two and a quarter inches is about the right size, I should think. H.

General Railroad News.

TRAFFIC AND EARNINGS.

Coal Movement.

Coal tonnages for the week ending Oct. 14 are reported as follows:

	1876.	1875.	Inc. or Dec.	P. c.
Anthracite.....	552,095	541,500	Inc..	19,595 3.6
Semi-bituminous, Broad Top.....	3,899	.....	.....	.....
" " Clearfield.....	30,840	21,058	Inc..	9,782 46.4
" " Cumberland.....	41,589	33,277	Dec..	11,588 21.7
Bituminous, Barclay.....	7,774	9,311	Dec..	1,437 18.6
" Allegheny Region.....	2,284	.....	.....	.....
" Pittsburgh Region.....	35,001	35,121	Inc..	120 0.3

The Pennsylvania Coal Company's October auction sale in New York, Oct. 20, showed an advance of prices over last

Railroad Earnings.

Earnings for various periods are reported as follows:

Year ending Sept. 30:	1875-76.	1874-75.	Inc. or Dec.	P. c.
Western Maryland.....	\$311,908	\$283,718	Inc..	\$28,190 6.3
Expenses.....	215,556	194,420	Inc..	21,136 10.9
Net earnings.....	\$96,347	\$89,298	Dec..	\$7,049 7.8
Earn. per mile.....	3,265	3,264	Dec..	1 0.0
Per cent. of exps.....	69.11	66.19	Inc..	2.9 4.4
Nine months ending Sept. 30:				
	1876.	1875.	Inc. or Dec.	P. c.
New Jersey Midland.....	\$467,352	.....	.....	.....
St. Paul & Sioux City.....	409,925	\$347,411	Inc..	\$62,514 18.0
Expenses.....	290,420	.....	.....	.....
Net earnings.....	\$140,505	.....	.....	.....
Per cent. of exps.....	64.80	.....	.....	.....
Sioux City & St. Paul.....	250,617	\$185,785	Inc..	\$64,832 35.0
Expenses.....	187,412	.....	.....	.....
Net earnings.....	\$63,205	.....	.....	.....
Per cent. of exps.....	74.70	.....	.....	.....
Eight months ending Aug. 31:				
Louisville, Paducah & Southwestern.....	\$292,777	.....	.....	.....
Month of August:				
Louisville, Paducah & Southwestern.....	\$38,247	\$38,720	Dec..	\$473 1.3
Month of September:				
Nashville, Chattanooga & St. Louis.....	\$132,828	\$147,180	Dec..	\$14,352 9.6
Expenses.....	83,999	79,214	Inc..	4,785 6.0
Net earnings.....	\$48,829	\$67,966	Dec..	\$19,137 39.1
Per cent. of exps.....	60.82	58.81	Inc..	2.01 3.4
Second week in October:				
Atchafalpa, Topeka & Santa Fe.....	\$65,864	\$54,601	Inc..	\$11,263 20.6
Chicago, Milwaukee & St. Paul.....	188,000	218,276	Dec..	30,276 15.9
Michigan Central.....	157,582	153,387	Inc..	4,195 2.7
Ohio & Mississippi.....	88,707	91,200	Dec..	2,493 2.7
Week ending Sept. 29:				
Great Western, of Canada.....	\$20,342	\$19,648	Inc..	\$694 3.5
Week ending Sept. 30:				
Grand Trunk.....	\$39,700	\$43,900	Dec..	\$4,200 10.6

Grain Movement.

Receipts and shipments of grain of all kinds for the week ending Oct. 14 are reported as follows, in bushels:

	1876.	1875.	Inc. or Dec.	P. c.
Lake ports' receipts.....	6,164,195	4,986,512	Inc..	1,177,683 23.5
" " shipments.....	4,365,720	3,999,015	Inc..	366,705 9.2
Atlantic ports' receipts.....	3,712,653	3,817,656	Dec..	105,003 2.8

Of the shipments from lake ports, 42 per cent. was by rail this year, against 28½ per cent. in 1875 and 14 per cent. in 1874.

Receipts at lake ports continue large without precedent, but the movement eastward is not nearly in proportion.

Chicago receipts and shipments for the week ending Oct. 21 were:

	1876.	1875.	Inc. or Dec.	P. c.
--	-------	-------	--------------	-------

Receipts.....2,806,544 2,397,331 Inc.. 409,213 17.5

Shipments.....1,825,151 1,875,549 Dec.. 50,398 2.8

Freight Rates from Chicago Southward.

A reduction of from 3 to 5 per cent. in rates from Chicago to Southern points has been made by the Illinois Central, the new rates being as follows per 100 pounds, barrel or car-load:

Chicago to.	1st class.	2d class.	3d class.	4th class.	5th class.	Flour per bbl.	Beef and pork per bbl.	Class A per car.	Class B per car.	Lumber and hay per car.
Paducah, Ky.	\$0.85	\$0.70	\$0.55	\$0.35	\$0.35	\$0.65	\$1.00	\$70	\$65	\$65
Columbus, Ky.	1.25	1.00	0.75	0.50	0.50	0.90	1.30	125	115	95
Hickman, Ky.	1.15	0.75	0.75	0.50	0.50	1.00	1.40	120	110	100

The rates for flour, beef and pork are for full car-loads. Boxed and bulk meats to Paducah, Columbus and Hickman, in full car-loads are 35 cts. per 100 pounds. The new rates took effect Oct. 23.

THE SCRAP HEAP.

Railroad Manufactures.

The forge and rolling mills of H. A. Beales & Co., at Parkersburg, Pa., are running full double turn and employing about 100 men.

The property of the Altoona Manufacturing Company, at Altoona, Pa., was sold at sheriff's sale recently and bought by Gen. Coulter, of Greensburg, Pa. A new company is to be formed at once and work continued as usual.

The Beach Improved Railway Manufacturing Company, of Chicago, has been organized to manufacture car wheels on an improved plan.

The Columbia Car Spring Company, whose works are at No. 322 Seventh avenue, New York, are running full time with a full force and all the furnaces in operation. The company has contracts for three months ahead and is considering the question of putting up more furnaces, to increase its facilities.

Mr. John McGraw, the contractor, has completed the masonry for the new Point Bridge over the Monongahela at Pittsburgh. The contract amounted to about \$200,000. The American Bridge Company, of Chicago, is contractor for the superstructure.

The Springfield (Ill.) Rolling Mill turned out during September 3,000 tons of iron rails.

The Riverside Mill, at Wheeling, W. Va., is now running on street rails and has contracted to furnish the rails for the Baltimore & Southwestern narrow-gauge road.

The Philadelphia & Reading Company's rolling mill at Reading, Pa., was closed Oct. 21 until further orders.

The Springfield Iron Company's mill, at Springfield, Ill., made 3,350 tons of iron rails in September, and is running full double turn, with more orders ahead than at any time last year. The company has recently been much troubled by the lack of cars to move both raw material and new rails, all of the rails in that section having their cars fully employed.

A Runaway Locomotive.

The Smyrna (Del.) Times, of recent date, says: "A few days ago the locomotive on the Smyrna Branch Railroad ran away and nearly killed itself. After bringing the noon train into town, and after Engineer McConaughy had started to dinner, the fireman, John Short, cut the locomotive loose from the car to shift it to the other track, and get it out of the way of a frightened peach train. He turned on steam, and as he did so the pin fell out of the throttle-bar. He could not shut her off after that, and away she went at breakneck speed through Commerce street to Clayton. Short made a perilous leap from her as she whizzed through Union street, and saved himself, though he was flopped over and over in the dusty street when he struck the ground. In just about one minute from the time Short pulled out the stopper here, the locomotive was a ruined mass at Clayton. The distance between the two points is one mile and a quarter. As quick as possible a telegram was sent to Clayton to 'switch her off,' but she beat the telegram by about two lengths and had spread herself pretty well over the depot ground when the dispatch reached there. She did not obey the curve at Clayton at all, but shot off in a straight line across the grounds. She jumped off with such force as to throw herself flat on her side, and in this condition she smashed into the platform along the main track, near the north end of the depot. She slid along sideways for 100 yards or more, snapping bolts and rods as if they were ropes of sand. Her wheels that were uppermost whizzed round like a top and the raging steam hissed like mad from every aperture. Fortunately the exhaust pipe broke, or she might have burst her boiler. The whole affair was over almost as quick as a wink. In two hours after the accident a wrecking train from Wilmington was on the spot, and by 4 o'clock the wreckers had picked up the pieces, put the wreck on the track, and were off for the repair shops."

A Railroad Man's Board Bill.

The Pottsville Miner's Journal says that a contractor on the South Mountain Railroad in Lebanon County, Pa., where "Pennsylvania Dutch" do abound, had some men working for him in the rural districts. At the end of each month he usually paid the board bills and deducted it from their wages. Some time ago he received the following bill and letter from a man who had been furnishing the staff of life to one of his workmen:

Yours Mounting r rote
lebinon kounte
September 9th 1876.

ALIX DUNIGEN
deter to washen close 1 months 16 sents
to 53 times ead at 20 sent 10 dolers 60 sents
get drunk 5 dolers
Mister—her is A dunigen his bort bil, it is 5 dolers charged
get drunk, it is sheap he mag so much nunsens ven he was
tude as I not hav again for dwice so much eny more, he break
my looken glass, and trow my pigs mit a shtones and preak his
pag, and mag my wife charged det putty near wit a shot gun,
and gif so much shouding around kigs up de devil so as peepel
peliere my hous vas a loonotick assem 5 dolers i charch ven
you doud pay it i charch 10 dolers.

Yours P—D—Esq.

Grain in Coal Hoppers.

The Cumberland (Md.) Obitian says: "Grain is now being shipped in ordinary coal hoppers, and we have of late seen a great deal of it, packed in this way, pass through Cumberland on the Baltimore & Ohio Railroad. The cars are filled with grain, which is protected from loose dust and rain by a heavy canvas stretched tightly over a ridge-pole and secured at the sides and ends of the cars. The grain is thus safe from the weather as though it were packed in sacks and placed in box-cars. The unloading is effected by removing the key in the bottom of the car."

It has been proposed to do something like this on trunk lines which have a heavy coal traffic and a heavy grain traffic in opposite directions. The need is to have the coal car made clean enough for the grain, and then provided with a protection against the weather. As nearly all goods in England have no other protection than tarpaulins, it would seem that this diffi-

culty might be overcome, but it is not so easy to prevent stealing on our long hauls.

Classes of Passengers in England.

A correspondent of the London Railway News, writing to controvert a charge that the reduction of the three classes to two on the Midland Railway had reduced the gross amount of passenger earnings, says:

"The next article in the indictment against the Midland is that it has conferred no favor on the first-class passenger. He would, if anything, prefer to pay the old fare. Here we have a most remarkable paradox. No one will, I suppose, deny that for comfort and convenience in a long journey the Pullman car surpasses any other kind of carriage that has ever been introduced on a British railway. Well, the old first-class fare from London to Glasgow was 23 5s. It is now 23 18s., and the extra fare for the Pullman is 7s., making, in all, 23 5s., or the same as the old 'popular' fare. 'What a rush there ought to be,' I thought, as I wended my way to the Scotch express at Pancras the other morning 'for the Pullman.' No such thing! It started without a single passenger. There was to be sure, a fair sprinkling in the one for Edinburgh, and I have little doubt that in the course of time the sluggish Britisher will rise to an appreciation of the great regard for his comfort which is manifested in the introduction of these luxurious means of locomotion. At present, however, he cannot be said to display any predilection for high fares. Nay, it is a question whether, if we carefully examined the reports of our long lines of railway, we should not find that the interests of shareholders would be best consulted by running nothing but third class, and that the addition of first and second, at whatever fares they elected to charge, are merely concessions to the tastes of a small minority of travellers. At any rate, each first-class carriage costs considerably more than a third, and takes less money. It is idle to talk about the lower orders only patronizing the third class. Every grade of society travels by it, and providing two classes above it on any but suburban and season-ticket lines is simply giving an expensive variety of accommodation for which nothing whatever but habit makes the public ask!"

Stealing an Engine.

The Keokuk (Ia.) Gate City of recent date says: "On Tuesday night, a little after ten o'clock, the wiper of St. Louis, Keokuk & Northwestern engine No. 3 got on the engine, standing near the Missouri, Iowa & Nebraska shops, at Alexandria, and conceived an irresistible longing to go on a rampage. He had taken aboard copious draughts of benzine, from the abundant supplies of that stimulant on sale there, and no one being around to interfere, he hastily fired up the engine, pulled the throttle wide open, and with loud blasts of the whistle, started down the track towards Canton at fast mail speed."

"During the night he came back whistling loud and long through town and part way towards Keokuk. He then returned and ran into a flat car full tilt, smashing the pilot of the engine badly and ditching the flat-car. This catastrophe seems to have terrified the fellow so badly that he deserted the

engine and took to his heels, as the engine was discovered there with plenty of fire in her and no water in sight. The wiper has not yet been seen, and it would hardly be healthy for him to return."

A Transit Instrument for Exact Work.

Some months ago Buff & Berger, instrument makers, of Boston, completed for the United States Lake Survey at Detroit a transit which is probably one of the finest ever made in this country. Its dimensions are: Weight, 195 lbs.; aperture of object glass, 3 inches; focal length of telescope, 40 inches; fitted with 2 finding circles, 1 diagonal and 1 direct eyepiece and a spider-line micrometer (a series of very fine vertical wires, accurately spaced and placed inside the tube). Light for illuminating spider-line micrometer is transmitted from two lamps through the transverse axis and graduated by a movable reflector, which changes the intensity as required by the condition of the atmosphere between the eye of the operator and the star he is observing. The telescope revolves in a meridian of hardened steel pivots, on top of which rests the striding level, reading to seconds of an arc. Concerning these pivots, Major C. B. Comstock, of the Corps of Engineers, engaged in the Lake Survey, writes:

"We have made a more complete examination of your transit No. 2, and find that the difference of the diameter of the pivots is 0.000021 in., a mean of 96 determinations. The greatest difference in elevation of top pivot at circle of contact in Ya, when the telescope is revolved in Ya, is in east pivot 'Tels. Direct.' This difference amounts to 0.000026 in., a mean of 37 determinations."

The greatest difference in the value of one division of level between limits 41 A end and 39 B end is 0.1 in."

In manufacturing these pivots they were made to revolve in a dead-centre lathe and brought in contact with a copper disc, moistened with oil and fine emery, and revolving at a four or five times greater speed in the opposite direction. It is curious to know that in attaining such accuracy the workman entrusted with it depended more upon his sense of hearing and feeling than upon his eye-sight, the latter sense being used merely as a test for the two former.

Railroad Material at the French Exposition.

Railroad material at the Paris Exposition of 1876 will be "Class 64," which has the following sub-divisions:

Detached parts: springs, buffers, brakes, etc.
Fixed material: rails, chairs, fish-bars, switches, frogs, turntables, buffer posts, water cranes and tanks, optical and acoustic signals.

Fixed material for street railroads.

Rolling stock: passenger cars, gravel cars, freight cars, stock cars, locomotives, tenders.

Special machines and tools for shops for the maintenance, repair and construction of material.

Material and engines for inclined planes and automatic planes [gravity roads]; material and machinery for pneumatic railroads, models of machines, methods of traction, and of apparatus pertaining to railroads.

Models, plans and drawings of depots, warehouses, sheds and other structures appertaining to the working of railroads.

RAILROAD EARNINGS IN SEPTEMBER.

Name of Road.	Mileage.					Earnings.					Earnings per Mile.	
	1876.	1875.	Inc.	Dec.	Per c.	1876.	1875.	Increase.	Decrease.	Per c.	1876.	1875.
Atchafalpa, Topeka & Santa Fe.....	711	508	203	.....	40.2	\$254,024	\$162,890	\$91,134	.....	55.9	\$357	\$179
Burlington, Cedar Rapids & Northern.....	401	401	.....	.....	.....	90,800	117,328	.....	\$27,128	23.0	226	294
Cairo & St. Louis.....	146	146	.....	.....	.....	23,706	22,886	.....	6,180	20.7	162	205
Canada Southern.....	422	422	.....	.....	.....	168,618	117,109	.....	41,509	35.4	351	259
Central Pacific.....	1,315	1,315	.....	.....	.....	1,086,000	1,567,622	.....	118,378	7.6	1,262	1,192
Chicago & Alton.....	650	650	.....	.....	.....	517,932	490,283	.....	27,649	5.0	797	754
Chicago, Milwaukee & St. Paul.....	1,400	1,399	1	.....	.....	646,150	741,206	.....	95,056	12.8	462	530
Cincinnati, Lafayette & Chicago.....	75	75	.....	.....	.....	34,940	41,726	.....	7,686	18.4	454	556
Columbus & Hooking Valley.....	89	89	.....	.....	.....	87,565	89,381	.....	1,816	2.0	984	1,004
Denver & Rio Grande.....	206	120	80	.....	71.7	46,029	29,266	.....	16,763	57.2	223	244
Hannibal & St. Joseph.....	296	296	.....	.....	.....	183,000	154,534	.....	28,466	18.8	618	623
Illinois Central.....	1,109	1,109	.....	.....	.....	923,057	718,101	.....	95,044	13.2	592	648
Indianapolis, Bloomington & Western.....	459	459	.....	.....	.....	133,426	88,990	.....	44,436	49.9	291	194
International & Great Northern.....	921	921	.....	.....	.....	488,398	444,832	.....	43,566	9.0	530	482
Louisville & Nashville.....	804	804	.....	.....	.....	622,526	620,814	.....	1,712	0.3	774	772
Michigan Central.....	786	786	.....	.....	.....	324,144	291,827	.....	32,317	11.1	413	371
Missouri, Kansas & Texas.....	341	341	.....	.....	.....	192,828	147,180	.....	14,382	9.8	390	432
Nashville, Chattanooga & St. Louis.....	86	86	.....	.....	.....	65,377	60,370	.....	5,007	8.6	760	700
New Jersey Midland.....	615	615	.....	.....	.....	330,111	341,060	.....	10,949	3.2	537	555
Ohio & Mississippi.....	115	115	.....	.....	.....	15,374	16,103	.....	729	4.5	134	140
Paducah & Memphis.....	470	339	.....	.....	23.1	128,954	124,089	.....	4,865	3.4	313	374
Rome, Watertown & Ogdensburg.....	71	71	.....	.....	.....	44,589	48,710	.....	4,121	8.5	629	686
St. Louis, Alton & T. R.—Bellefonte Line.....	685	685	.....	.....	.....	374,000	333,776	.....	40,224	12.1	546	487
St. Louis, Kansas City & Northern.....	504	504	.....	.....	.....	290,601	246,624	.....	43,977	17.8	577	489
St. Louis & Southeastern.....	349	349	.....	.....	.....	104,400	88,678	.....	15,724	17.8	299	254
St. Paul & Sioux City.....	122	122	.....	.....	.....	48,987	49,338	.....	351	0.8	401	404
Sioux City & St. Paul.....	148	148	.....	.....	.....	32,284	27,908	.....	4,376	15.4	218	189
Toledo, Peoria & Warsaw.....	237	237	.....	.....	.....	145,028	159,804	.....	21,194	17.1	618	643
Toledo, Wabash & Western.....	628	628	.....	.....	.....	411,262	342,179	.....	69,083	20.2	655	545
Totals.....	14,475	14,108	367	.....	.....	\$8,164,550	\$7,800,686	\$363,864	.....	4.7	\$554	\$552
Total increase.....	.....	.....	367	.....	2.6	.....	.....	363,864	.....	.....	.....	.....

RAILROAD EARNINGS, NINE MONTHS ENDING SEPT. 30.

Name of Road.	Mileage.					Earnings.					Earnings per mile.				
	1876.	1875.	In.	Dec.	Per c.	1876.	1875.	Increase.	Decrease	P.c.	1876.	1875.	In.	Dec.	P.c.
Atchafalpa, Topeka & Santa Fe	692	508	184	.....	36.2	\$1,476,810	\$1,004,238	\$472,572	.....	73.9	\$2,524	\$1,918	\$606	.....	31.9
Burlington, Cedar Rapids & Northern	401	401	.....	.....	.....	831,234	936,570	.....	\$105,336	11.2	2,068	2,331	.....	\$263	11.2
Cairo & St. Louis	146	146	10	.....	7.4	196,448	196,680	.....	241	0.1	1,345	1,446	.....	98	6.8
Canada Southern	422	422	.....	.....	.....	1,266,245	845,992	.....	420,253	80.1	2,801	1,867	934	.....	50.1
Central Pacific	1,315	1,300	15	.....	1.2	13,143,166	12,567,944	.....	575,222	4.6	9,995	9,667	328	.....	3.4
Chicago & Alton	650	650	.....	.....	.....	3,679,096	3,462,634	.....	216,462	8.1	5,660	5,225	435	.....	8.1
Chicago, Milwaukee & St. Paul	1,400	1,399	1	.....	.....	5,961,370	6,666,538	.....	705,168	4.5	4,187	4,066	121	.....	2.9
Cincinnati, Lafayette & Chicago	75	75	.....	.....	.....	281,658	292,111	.....	10,453	3.6	3,755	3,896	.....	140	3.6
Denver & Rio Grande	159	120	39	.....	32.5	334,451	265,000	.....	69,451	26.2	2,103	2,208	.....	105	4.8
Hannibal & St. Joseph	296	296	.....	.....	.....	1,397,109	1,166,580	.....	230,529	19.8	4,720	3,941	779	.....	19.8
Houston & Texas Central	508	508	.....	.....	.....	1,963,941	1,719,080	.....	244,861	14.2	3,866	3,386	480	.....	14.2
Illinois Central	1,109	1,109	.....	.....	.....	5,248,761	5,033,822	.....	214,939	5.1	4,733	4,989	.....	256	19.4
Indianapolis, Bloom. & West'n	344	344	.....	.....	.....	1,117,691	935,824	.....	181,867	19.4	3,249	2,729	520	.....	19.4
International & Great Northern	459	459	.....	.....	.....	857,704	681,112	.....	176,592	3.2	1,868	1,811	57	.....	3.2
Louisville & Nashville	921	921	.....	.....	.....	3,657,671	3,346,346	.....	311,325	9.3	3,971	3,631	338	.....	9.3
Michigan Central	804	804	.....	.....	.....	5,061,407	4,810,753	.....	250,654	5.2	6,295	5,954	341	.....	5.2
Missouri, Kansas & Texas	786	786	.....	.....	.....	2,260,650	2,003,509	.....	257,141	12.8	2,876	2,549	327	.....	12.8
Nashville, Chattanooga & St. L.	341	341	.....	.....	.....	1,967,963	1,164,973	.....	102,991	8.8	3,718	3,416	302	.....	8.8
Ohio & Mississippi	615	566	49	.....	8.7	2,718,424	2,419,506	.....	298,918	12.4	4,420	4,275	145	.....	3.4
Paducah & Memphis	115	115	.....	.....	.....	150,172	137,214	.....	12,958	9.4	1,306	1,199	113	.....	9.4
St. Louis, Alton & Terre Haute	71	71	.....	.....	.....	344,790	402,993	.....	58,203	14.4	4,856	5,676	.....	820	14.4
Bellevue, Ill. Line	685	685	.....	.....	.....	2,625,133	2,496,923	.....	128,210	5.6	3,832	3,628	204	.....	5.6
St. Louis, Iron Mountain & Southern	504	504	.....	.....	.....	2,263,490	1,884,290	.....	379,191	20.1	4,491	3,730	762	.....	20.1
St. Louis, Kansas City & North'n	349	349	.....	.....	.....	803,445	708,699	.....	94,746	13.4	2,302	2,031	271	.....	13.4
St. Louis & Southeastern	122	122	.....	.....	.....	409,925	347,411	.....	62,514	18.0	3,850	2,847	1,003	.....	18.0
St. Paul & Sioux City	148	148	.....	.....	.....	250,617	185,862	.....	64,755	35.0	1,633	1,083	550	.....	35.0
St. Paul & St. Paul	337	337	.....	.....	.....	1,074,813	755,689	.....	319,124	42.0	4,536	3,183	1,353	.....	42.0
Toledo, Peoria & Warsaw .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals	13,704	13,406	298	60,814,254	55,905,020	\$5,318,228	\$458,994	\$4,438	\$4,174	\$264	6.3
Total increase	299	2.2	4,859,234	8.7



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Editorial Announcements.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITORS RAILROAD GAZETTE.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns our own opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

THE VERMONT CENTRAL REORGANIZATION.

The managers of the Central Vermont Company have recently prepared and submitted to the holders of Vermont Central bonds the plan of reorganization which has been so long promised. No general action has been taken upon it as yet, but we are told that at a recent meeting of the bondholders in Boston much dissatisfaction was expressed and the general drift of feeling was decidedly against the plan. And it is not to be wondered at that it was so, for a more remarkable proposition was probably never submitted to any body of holders of what they believed to be securities. In brief, it is proposed to put upon the Vermont Central and the Vermont & Canada roads, about 175 miles of road in all, \$7,000,000 new bonds, \$1,000,000 guaranteed, \$2,500,000 preferred and \$1,500,000 common stock, being \$40,000 per mile in bonds and \$28,600 in stock. It is not, however, the amount but the disposition of these securities that is the most extraordinary. Except \$1,500,000 to be used in purchasing the Vermont & Canada road, the new bonds are to be used in canceling or funding what is known as the trust debt; the guaranteed stock is to go to the present stockholders of the Central Vermont, while the holders of Vermont Central first-mortgage bonds are put off with two-thirds of the face of their bonds in preferred stock, and those of the second-mortgage bonds with one-fifth of the face of their bonds in common stock. The Vermont & Canada is to receive \$500,000 of the preferred stock and the Central Vermont stockholders the unappropriated balance of the common stock.

We have heretofore set forth pretty fully the history of the Vermont Central, but a few words of explanation may be needed now to make the matter clear. Briefly, then, the Central Vermont Company, on whose behalf this plan of reorganization is put forward, does not own and never has owned a mile of the road which it works. For twenty years the Vermont Central and the Vermont & Canada roads have been managed by trustees, who are nominally under the direction and control of the Court of Chancery of Vermont. Up to 1873 these trustees were individuals appointed by the Court, but in that year the Central Vermont Company was organized under a special charter for the purpose of acquiring the roads by purchase or consolidation, and it now works them as trustee and receiver,

its charter making special provision for its appointment to that position in its corporate capacity. The trustees, who have for so many years managed the roads and who now control the receiver-corporation, have not been contented with the simple management of the trust; they have leased other roads, made extensions and built branches until they now manage nearly the entire railroad system of Vermont, control a line across Massachusetts and Connecticut to Long Island Sound at New London, another reaching up through Canada towards Montreal, and, until a few days since, worked another leading across Northern New York to the St. Lawrence at Ogdensburg. These extended operations have not been profitable, to the trust at any rate, and besides the original debt when the trust began there has accumulated a great debt, known as the trust debt. Of this \$3,912,600 is represented by issues of bonds known as the "equipment," the "income and extension," and the "guaranteed" bonds. The remainder, stated at \$1,587,400, is in the form of floating debt, making the trust debt amount to \$5,500,000 in all.

The Vermont & Canada road was leased to the Vermont Central, and one of the original objects for which the trust was created was to secure the payment of rental due. Its stockholders have been active and outspoken in defense of their rights, and it is now proposed to quiet them and to buy their road outright, paying for its 57 miles \$1,500,000 in bonds and \$500,000 of preferred stock. The old Vermont Central stock has long ago sunk out of sight, and is not considered at all. No mention is made in the plan of the leases of the Rutland, the New London Northern and other lines, but we presume that they are to be continued as at present. The stockholders of the Ogdensburg & Lake Champlain Company, not receiving their rent, have lately taken possession of their road, and, as their case is before the courts of New York, they have a good prospect of retaining it, and may fairly be considered as outside of the present matter.

The value of the property is not easy to determine for the reason that the reports made by the trustees have been few and far between, and, besides, of a very insufficient and indefinite character. It is pretty certain, however, that the earnings of the whole system, after paying operating expenses and rentals, are utterly insufficient to pay interest and dividends on guaranteed stock, leaving nothing whatever for the stockholders, preferred or common. The plan provides for funding several coupons from the new bonds, but the amount thus saved will be used to pay off the unfunded balance of the floating debt. There is no present prospect of any increase in the earnings of the roads, and the outlook for stockholders is certainly anything but cheering.

The great stumbling block in the way of the old bondholders is the enormous trust debt. For the trustees it is claimed that this debt has a lien superior to the bonded debt, and that, even if the road should be sold under foreclosure, it would have to be provided for. On the other hand, bondholders say that it was clearly beyond the powers of the trustees to incur this debt for any purposes except the actual care and working of the road. Much of it resulted from the leases and other outside operations of the trustees, and these objecting bondholders say it was clearly beyond the powers of the trustees or those of the Court to impose debt so incurred upon the trust. Moreover, many of the bondholders do not believe that this is an honest debt, but are inclined to think that much of it has come in ways that will not bear close inspection—in short that there has been mismanagement and even actual dishonesty. Doubtless many charges have been made which have not been proved and perhaps cannot be, but where one trustee is found to have received a royalty on castings furnished to the road under contract, while others are interested in car companies which loan cars, in rolling mills which furnish rails, in roads which are leased to and in fast freight lines which do business over the roads included in the trust, it may at least be doubted whether its affairs have been managed with that singleness of purpose and that close attention to the interests of the *cestui qui trust* which characterize the ideal trustee. It is stated also that, while some of the trust bonds were issued by special authority of the Court, much of the debt rests only upon an order made by the Chancellor in chambers, without notice, and which simply authorized the trustees to appoint a treasurer, apparently as a matter of convenience only, "and to confer upon him such power in respect to signing and indorsing notes, and signing and indorsing and accepting drafts, bills of exchange and checks, in the negotiation of temporary loans, as to such trustees and managers may seem proper; the liabilities" so incurred, etc., being "hereby declared to be a charge upon the trust property, under the control of said trustees and managers." Such an order, it is claimed, is no sufficient warrant for the debt as it now stands.

Doubtless many of us have read strange stories of the English Court of Chancery, how great estates have been put into chancery and, after a generation or two of litigation, the cases have been, not decided, but dropped, simply because there was nothing left to fight about, the estate having disappeared and left behind it no trace except in the well-lined purses of the lawyers and court officials con-

cerned in it. Perhaps we have congratulated ourselves that the more simple and expeditious administration of justice—or law—made such things impossible on this side of the ocean. But the case of these Vermont Central bondholders does not differ greatly from the English precedents. Twenty years ago they had an undoubted first lien upon a road that was fairly worth their claim. Their interest was, indeed, temporarily in default, but there was every prospect that, with careful management, the road would pay, and at the worst if they could have taken it in their own hands it would have earned them a reasonable interest on their investment. Now, after nearly a generation of mismanagement and litigation, of extensions and leases profitless, to the trust at any rate, of business yielding a profit only to the agencies through which it was obtained, and of careful covering up and concealment of the real operations of the trust, they are asked to surrender their lien and to accept a stock which is really worthless, for it cannot be pretended that the road is, or is likely to be, worth more than the \$40,000 per mile of the proposed new bonded debt. And, if the reports given in the Boston papers are as trustworthy as they usually are, an agent of the trustee quietly tells them they had better accept this offer, for if they decline it there is nothing left to them but to continue the old suit, from which they can hope for little or nothing.

What they will do remains to be seen. Doubtless the Central Vermont managers rely much upon the difficulty of securing united action from a scattered body of bondholders, many of them owning but small amounts, and still more unable or unwilling to contribute the money needed for continued litigation. At any rate they have gained time for themselves, and that is a gain so long as they continue to hold the property. It is not impossible that after a few protests and some stormy meetings the bondholders may take their preferred stock after all, with the faint hope that it may be worth something some time. But there is a possibility the other way, and the end is not yet.

The Effect of a European War on Grain Exports.

A Russian war, it has been assumed, would give a great impulse to our grain exports and bring prices up to high figures. This effect followed the breaking out of the Crimean war, and evidently the experience then is trusted as a basis for expectations now. There is no doubt that a war in which Russia is involved causing the obstruction of shipments from the Black Sea by way of the Dardanelles would tend to increase the demand and raise prices. Perhaps the effect would be less than is expected, however. Russia is still a large exporter of wheat, but its situation is much different from that existing at the time of the Crimean war. Then almost the sole outlet of its wheat-growing districts was by the Black Sea. Now, England, it is true, imports from Russia almost exclusively by the Black Sea, but very large shipments are made to Germany direct by rail, and probably England is not now the largest foreign consumer of Russian wheat. Moreover, the railroads which carry wheat to the Black Sea now have connections which enable them to carry it to the Baltic also, and not only to Russian Baltic ports, which might be blockaded, but also to German railroads which can forward it to all continental consumers and to German ports whence it can be exported to England. Doubtless this will be more costly transportation than that by the Black and Mediterranean; still, the rail haul is not long, or would not be so regarded in this country; and we are inclined to think that if Russia were America most of the wheat destined for England would always move northward to the Baltic instead of southward to the Black Sea, saving a very long and circuitous sea voyage. Russia has established one obstacle to a free international grain movement by adopting the 5 ft. gauge; but this is already overcome in the large exports to Germany, and of course need add but a trifle to the cost.

The one thing which would substantially exclude Russian grain from other European markets is war between Germany and Russia as well as between England and Russia; but this seems not to be thought possible.

Of the 100,000,000 bushels of wheat imported by Great Britain during the last crop year, Russia supplied 17½ per cent. and the United States 42 per cent. During the two years previous Russia's contributions were 19½ and 13½ per cent., respectively. If, however, the English should be wholly deprived of Russian grain, we could not expect to have our exports increased by the same amount. The result would be that the entire Russian surplus would be forced upon the Continental markets still open to it, which would thus import less American grain. Thus while our English exports might be greatly increased, there would probably be a decrease in exports to the Continent, or to the more eastern parts of the Continent.

Our wheat exports to Great Britain amounted during the year ending with August last to about 42,000,000 out of a total of 100,000,000 bushels imported into that country. Our exports were 2½ per cent. greater in 1874-75, and 7 per cent. greater in 1873-74. But while our exports were greater in the earlier years, the total British imports were less. Compared with 1874-75, Great Britain required from foreign countries last year

nearly 18,000,000 bushels more wheat; but the United States supplied it with 1,000,000 less, so it had to make good a deficit of 19,000,000 from other countries. It is interesting to know whence it obtained this vast amount—19 per cent. of its ordinary supply. Germany did not increase its supply, but diminished it by 850,000 bushels; but there was an increase from every other source of supply, amounting to

725,000 bushels from.....	Russia.
760,000 " " " " " " " "	Denmark.
175,000 " " " " " " " "	France.
1,300,000 " " " " " " " "	Turkey, etc.
5,800,000 " " " " " " " "	Egypt.
1,535,000 " " " " " " " "	Chili.
1,600,000 " " " " " " " "	British India.
2,000,000 " " " " " " " "	British North America.
6,900,000 " " " " " " " "	Other countries.

Turkey increased its exports by 160 per cent., Egypt by nearly 300 per cent., Chili by 140 per cent., British India by more than 80 per cent., British North America by 40 per cent., Denmark by 175 per cent.; "other countries" by 280 per cent.

These figures show the great elasticity of the exports, but in many cases they are doubtless misleading, if applied to the total exports of the countries named. England had a special demand for wheat last year, and the result was, doubtless, to divert to it grain which, under ordinary circumstances, would have gone elsewhere. Much more is it erroneous to assume that the production of the countries named increased in anything like proportion to the increase in their exports to Great Britain. Many of the exporting countries never have more than a very small proportion of their total production to spare, and so this surplus for export may treble or quadruple with a comparatively trifling increase in production. If France, for instance, consumed 195,000,000 bushels yearly, with a crop of 200,000,000, it could export 5,000,000; but with a crop of 210,000,000—only 5 per cent. greater—it could increase its exports 200 per cent. Even this country rarely exports 15 per cent. of its total product, and the heavy exports of the last few years have been largely due to the great California crops, which have virtually no home market. This year, for instance, California expects to send to Europe about half as much as the total wheat exports of the United States last year.

Unfortunately, the Northwest is not in position to profit as much as usual by high prices for wheat. Illinois, Wisconsin, Minnesota and Iowa, whence most of the spring wheat comes, have very light crops of wheat. On the other hand, California has an immense crop, and will profit greatly by a rise in price. A war, however, would doubtless improve the demand for corn and provisions, and the Northwest is full of these.

The New Jersey Central Strike.

The strike of the engineers on the Central Railroad of New Jersey, however justifiable a strike may have been, was grossly unjust in its method. The men, if unjustly treated and dissatisfied with their wages, had a right to stop working; but they had not a right to stop in such a way as to do great injury at once to their employer and their employer's patrons by leaving the trains in out-of-the-way places at the dead of night, so that many passengers were compelled to undergo needless suffering and inconveniences. If the company would not make such a contract as the engineers would accept, he had a perfect right to say, "I will not take out the train," and for the inconvenience and loss resulting thereby the engineers would not be responsible. But having started out with his train, it was his duty to finish his trip, and we are much mistaken if the men who abandoned their trains in the midst of their trips are not legally liable for the damage so caused. No possible injustice on the part of the company could warrant the men in doing what they did, which was much more a punishment of the patrons of the company than of the company itself. No policy could have been more likely to prejudice the public against the men and prevent its giving proper weight to their complaints against the company. A railroad strike must inevitably cause much inconvenience to the public—which, however, does not make a railroad strike always wrong. But a strike like this, which takes men, women and children against whom the strikers have no complaint, carries them far from home, and then leaves them at dead of night with no means of getting away, is so monstrous in its method as to make men unwilling to give any hearing to an explanation of its causes.

Since the above was written we have information that on the night of the 23d a switch was set wrong on the line of this road by some unknown person, and the signal placed to indicate "line clear." A passenger train was thrown from the track thereby, and three persons lost their lives. The inference in most persons' minds will be, that this was done by some one who sympathized with the strikers, and the latter would act wisely to clear their skirts of all suspicion, which will inevitably rest on them, of participation in this crime, because the only arguments which can be used with the perpetrators of it, if they can be found out, are musket-balls or a hangman's rope.

In another column it will be seen that the railroad company has acceded to the terms proposed by the strikers. It is difficult at the present time to say exactly who was right, and who and to what extent wrong. The men complain that the committees which were sent to the officers of the railroad were not granted an interview, and were not treated respectfully—a blunder into which railroad officers often fall. Maintaining the dignity of the officers is often very expensive to stockholders. The men say they were willing to submit their case to arbitration, if their committee had secured a proper hearing. On the other hand, it is asserted that at the time the committee

called the President was not in his office, and that it was impossible for him to see them; that the conduct of the men was very arbitrary and indecorous; and that one of the grounds of the strike was a disputed question as to wages on the Long Branch road, about which the company had not yet come to a decision, and which it expected to decide by negotiating with the men.

Be the case as it may, it seems extraordinary that a body of men like these engineers should not be able to meet their officers and discuss and decide their differences amicably without resorting to a strike. Probably if both sides could have met around a table and stated their cases dispassionately to fair-minded arbitrators, a decision satisfactory to both sides could have been reached in a very short time. Be that as it may, the engineers have gained their case, and can therefore afford to discountenance the criminality which instigated the diabolical act by which three innocent men lost their lives. Let them offer a liberal reward for the detection of the murderer and pay it if he is apprehended, and it would be some indication that they do not sympathize with such acts, by which, unfortunately, they are so often placed in the wrong, and lose the sympathy of fair-minded people.

The Course of Prices of Rails.

The Cambria Iron Company has published an interesting lithographed diagram of the average prices of American iron and steel rails, free on board at Philadelphia, from 1847 to the close of the first quarter of this year, the profile paper being extended far enough to permit carrying forward the diagram to the close of 1884 (unless prices should fall below \$30 or rise above \$185 per ton). Prices of iron rails begin at \$72 in 1847 and fall almost without interruption till the close of 1850, when they touch \$42. They rose almost immediately, however, a little, but at the middle of 1852 were only \$46, but leaped from that figure to \$77 by the close of the same year, maintaining that price nearly the whole of 1873, and going up to \$80 in 1854, but in the first half of 1855 they had gone down to \$60, and after reaching \$67 in 1857 they went down in three months to \$50, whence their course was generally downward until the close of 1861, when \$36½ was the price. Thence the influence of the depreciation of the currency sends the line indicating the price sharply upward. The figures were \$46 at the close of 1862, but they jumped up to \$72 in less than a month, were \$88 at the close of 1863, and in September, 1864, were \$153.75, sinking by July, 1865, to \$83. From the last quarter of 1865 until the first quarter of 1871 the progress was generally downward, at the later period reaching \$68; it recovered to \$71 by the close of 1871, shot up to about \$90 by June of that year, and has dropped thence almost without interruption, and without a single recovery. The last price quoted is \$42, for the first quarter of this year, and there has been a slight further decline since, as we know. For the ten years ending with 1865 the average price is given at \$66.37 per ton; for the last ten years, \$73.64.

The steel rail prices begin with 1868 at \$164, rise to \$173 by April of that year, then plunge downward rapidly to \$146 at the close of 1868, \$120 at the close of 1869, and \$96 at the close of 1870. Thence prices fluctuated, but rose gradually to \$121 in the first and third quarters of 1873. They were \$119 at the close of that year, but had fallen to \$100 by April, 1874, to \$90 by July, to \$80 by September, and to \$75 by the close of the year, whence the decline was more gradual to \$59 in April of this year, since which time prices have fallen to about \$54.

Perhaps the most interesting thing in the diagram is the position of the iron and steel lines of prices with regard to each other. In April, 1868, they were no less than \$96 apart (iron \$79; steel, \$173). Thence they approached rapidly until at the close of 1870 they were but \$26 apart. Since that time they have continued to approach, but more slowly, and in April of this year are \$17 apart. Current quotations make them but \$14 apart. At the last contracts let in Belgium they were but \$5 (gold) apart. The vicissitudes of prices during the war were very largely due to the fluctuations of the currency, and the diagram would show the differences in market value better if the prices had been reduced to gold, or a line had been added to show the premium on gold. But before and since the war there have great and sudden fluctuations. The diagram is an exceedingly interesting one. Mr. C. P. Sandberg, the well known London engineer and rail inspector published one somewhat similar for English prices; but of course this is more valuable to Americans, especially in these times, when we have virtually ceased to import rails.

The Grain Movement for Twenty-five Weeks.

The shipments of grain of all kinds from the eight principal Northwestern markets for each week since April 22 have been, in bushels, by lake and by rail:

Week ending—	By lake.	By rail.	Total.	Per cent. by rail.
April 22.....	1,534,541	2,072,946	3,707,487	56
" 29.....	2,445,191	2,292,633	4,737,824	48½
" 6.....	1,838,526	2,302,940	3,841,466	60
" 13.....	1,692,170	2,016,304	3,618,474	55½
" 20.....	1,747,408	1,820,486	3,567,894	51
June 3.....	2,412,162	1,797,922	4,210,084	42½
" 10.....	2,894,915	2,147,670	5,042,585	42½
" 17.....	2,921,405	2,091,811	5,013,216	46
" 24.....	2,728,706	2,198,054	4,926,760	44½
July 1.....	1,921,155	1,784,548	3,605,703	49½
" 8.....	1,765,010	1,305,184	3,070,194	40½
" 15.....	1,648,508	1,228,678	2,877,186	42½
" 22.....	2,369,336	1,032,925	3,402,261	31½
" 29.....	1,466,502	1,038,208	2,504,710	41½
Aug. 5.....	2,058,243	1,263,268	3,321,511	38½
" 12.....	1,744,059	1,800,720	3,544,779	42½
" 19.....	2,150,292	1,614,260	3,764,552	42½
" 26.....	2,382,152	1,520,511	3,902,663	39½
Sept. 2.....	1,698,491	1,873,058	3,571,549	48½
" 9.....	2,374,473	1,818,411	4,192,884	43½
" 16.....	2,963,634	1,689,318	4,652,952	36½
" 23.....	2,368,894	1,820,361	4,189,255	44½
" 30.....	2,427,337	1,797,847	4,225,184	42½
Oct. 7.....	3,009,394	1,650,858	4,660,252	35½
" 14.....	2,630,739	1,635,991	4,266,730	42
Total for 25 weeks.....	54,470,253	43,234,078	97,704,331	44½

Here, for the last week, we have a falling off in the total shipments eastward, but the rail shipments have increased, and were the largest of the Fall. Wheat has now become a large part of the traffic—greater in receipts at lake ports than in their shipments, but greater in their shipments than in the sea-board receipts. The movement eastward is large, but yet not nearly enough to keep down stock in the Northwest, where the receipts for the past two weeks have been 3,600,000 bushels in excess of the shipments. At this rate a very large stock will accumulate for winter shipment, when it must go by rail or be stored till spring.

For the same 25 weeks the receipts at the different Atlantic ports have been:

	Corn.	Per cent. of total.	All grains.	Per cent. of total.
New York.....	16,731,226	33.2	42,866,086	45.1
Boston.....	5,285,483	10.5	7,362,516	7.7
Portland.....	458,600	0.9	817,770	0.9
Montreal.....	3,121,781	6.3	10,169,986	10.7
Philadelphia.....	12,019,650	23.9	17,634,400	18.6
Baltimore.....	11,011,900	21.9	15,710,585	16.4
New Orleans.....	1,747,076	3.4	2,433,592	2.6
Total.....	50,876,286	100.0	94,004,875	100.0

Compared with the previous week New York has made a considerable advance in rank in corn and in all grains. Baltimore and Philadelphia again fall back a little—Baltimore losing most.

During the last week, the percentage of corn receipts at each port was: New York, 48 per cent.; Philadelphia, 18; Baltimore, 14½; Boston, 10½; Montreal, 8 per cent. In grain of all kinds these percentages were: New York, 58; Philadelphia, 15½; Baltimore, 9; Boston, 8½; Montreal, 7½ per cent.

New York is receiving a larger proportion than before this season. It is noticeable, however, that the other cities receive a considerable proportion of wheat, hitherto regarded as peculiarly a New York export. The increase in the New York receipts, however, does not go very far back. Its receipts this fall (since Sept. 2) have been but a trifle greater on the average than for the entire 25 weeks since navigation opened. To illustrate the changes in the fall movement, we give below the average number of bushels received at each port for the whole season of 25 weeks, and for the past six weeks:

	Average of 25 weeks.	Average of 6 weeks.
New York.....	1,714,641	1,738,346
Boston.....	284,493	288,414
Portland.....	82,711	16,950
Montreal.....	406,797	308,202
Philadelphia.....	706,376	884,967
Baltimore.....	645,423	600,317
New Orleans.....	97,341	47,877
Total average.....	3,799,702	3,875,076

The total average weekly receipts having been smaller in the latter period, New York's share has increased more in proportion than appears above. For the entire 25 weeks, as shown, it received 45.1 per cent. of all the grain arriving at Atlantic ports; for the last six weeks it has received just about 50 per cent. of such arrivals.

Foreign Railroad Notes.

At the Congress of Economists held in Bremen Sept. 25 to 28, Prof. Boehmert, appointed to report on the subject of the purchase of the German railroads by the Imperial Government, presented the following resolutions:

1. The Congress of Economists holds it as imperatively demanded that the shortcomings of the German railroad system, especially the uncertainty and intricacy of the tariffs, should be remedied immediately.

The proposed plan for remedying these shortcomings by a purchase of the German railroads by the Imperial Government seems, from the economical standpoint, questionable, chiefly for the following reasons:

- a. Because it endangers the finances of the Empire.
- b. Because the further extension of the German railroad system must suffer from the withdrawal of private capital.
- c. Because the self-dependence and self-direction of smaller and larger traffic districts will be prejudiced thereby.
- d. Because thereby the earnings would be dependent upon politics, and on the judgment of an excessively centralized Imperial Government.
- e. Finally, because it is to be feared that neither would local and provincial interests nor the circumstances of the world's markets and the ever varying necessities of traffic find prompt recognition.

3. The Congress holds the attempts heretofore to regulate railroad business by law not so exhaustive as to justify the conclusion that such regulation by law is forever and entirely impossible. The Congress declares it advisable, however, instead of a general railroad law, to agitate for the issue of special Imperial laws for the execution of the regulations of Section VII. of the Constitution of the Empire; and first of all it recommends the introduction of legal regulations concerning tariffs, not in the direction of establishing the amount of the tariff rates,* but for the purpose of rules:

- a. On the tariff system and the permissible exceptions.
 - b. On requiring the railroads to establish through tariffs.
 - c. On the method of publishing the tariffs, especially on equal periods before a tariff goes into effect, and on the selection of certain organs for their publication.
 - d. On the minimum duration of a tariff.
 - e. On increasing or modifying a tariff.
 - f. On the prohibition of secret drawbacks.
4. In legislating on railroads regard should be had to the protection of the public traffic interests, the maintenance of the existence of the existing State or private railroads, and also the possibility of a consolidation of scattered railroad districts and the facilitation of a further extension of the railroad system.

At a recent letting of contracts for steel rails in Belgium, the

* The Imperial Railroad Bureau remarks expressly in its memorial of May 16, 1874, page 18: "that it considers equal freight rates, and even equal maximum rates, for all railroads unjustifiable, in view of the varying circumstances of the railroads."

lowest bid was \$35.25 gold per ton, and for iron rails, \$30.75. The contracts were let for 10,000 tons of steel and 5,000 of iron, to be delivered during 1877, but not all at these prices. These are the lowest prices yet.

At a recent letting in France, M. Arbel (who exhibits at Philadelphia) was awarded a contract for 33 iron locomotive wheels at \$122 per ton of 2,200 lbs., or 5½ cents a pound; while another firm took 412 passenger-car wheels at about \$74 a ton (3½ cents per pound). Freight-car wheels mounted on steel axles brought \$96 a ton (4¼ cents a pound); and passenger-car wheels mounted on iron axles \$93 per ton (4¼ cents per pound). Forged iron car axles were let at \$5.36 per 100 lbs., another lot at \$5, and a lot of Bessemer steel axles at \$4.46. A lot of 60 tank locomotives were let at prices varying from 12.94 to 41.1 cents per pound.

Giffard, the inventor of the injector, is to have an immense balloon at the Paris Exhibition of 1878. It will be about 110 ft. in diameter, and contain about 220,000 cubic feet, and, when fully inflated with hydrogen gas, is expected to be able to take up a locomotive. The balloon is to be held captive by cables which will permit an ascension of about 1,600 feet. By adding supplementary cars 100 people can be taken up at once, and it is intended to do this occasionally, but ordinarily there will be accommodations for 40 or 50 only. To save gas it will be hauled down by a steam engine (of 200 horse-power); but that will not prevent an immense expense for gas. A single inflation, lasting about 48 hours, is expected to require more than 110,000 lbs. of iron filings and 220,000 lbs. of sulphuric acid to produce the gas. Giffard is to make it wholly at his own expense. His inventions have made him rich.

M. Hippolyte Fontaine, who represented the French technical journal *La Revue Industrielle* at Philadelphia, writes in his paper: "Considered as a whole, the Philadelphia Exhibition is extremely remarkable, though the almost entire absence of masterpieces in the class of fine arts, and the quite limited number of novel productions of industrial art deprive it of any supremacy over the Paris and Vienna exhibitions. The agricultural and machinery buildings alone are splendid and much superior to all that have preceded them. Thus for the student whose occupations or tastes are directed toward the mechanical arts, the new exhibition is unrivalled, while to all other visitors the Paris and Vienna exhibitions, especially the former, offered more numerous, more various and more brilliant attractions and subjects for study." After some brief notes on some of the more striking exhibits on machinery, he says: "But it is chiefly among the constructors of machine tools for working iron that we have been able to reap the greatest harvest of information. Without any exaggeration, there are in the United States twenty tool manufacturers more skilful than the best of the French manufacturers." Mentioning a few of them he says: "William Sellers, the Whitworth of America, who has a very fine collection of large machine tools, the gem of which is the gear-cutting machine; Putnam, of Fitchburg, who gives to all his machines a rational form and an admirable finish; we have never seen drills so convenient and handsome, and we would be happy if the Conservatory of Arts and Trades were to acquire the smallest of them; it would be the handsomest tool in its collection, already so rich in apparatus of all sorts. Pratt & Whitney show a collection as complete as that of Sellers, but of smaller machines, with a perfection of adjustment impossible to surpass." Other makers mentioned are Brown & Sharpe, of Providence; Hill & Clarke, of Boston; Ferris & Miles, Cooper, and Van Haagen & Co., of Philadelphia.

There were 72 postal cars on the Swiss railroads at the close of 1875—one to every 16 miles of railroad. Their average cost has been \$1,500 each; and in 1875 they ran an average of 36,000 miles each. In accordance with their charters, the railroad companies are required to haul these cars without charge to the government, but they are allowed 15 cents per hundred miles run for lubricating and cleaning the cars. The expense per car-mile there is a little more than three cents, and the service performed by the roads (stipulated for before they were built) amounts to a tax of about \$150,000 for the 1,280 miles of road in Switzerland. The postal cars are owned by the Post-Office Department, which also makes the repairs and renewals, or rather has them done by contract at its own expense. The contract is let to a leading railroad company at the rate of about 21 cents per car per day, or \$77 per year. The cars now made are 25 ft. 9 in. long, with a wheel-base of 14 ft. Three men work in a car usually, two in the distributing office at one end of the car and one in the other end, where the sorted mails are stored and carried. Great pains are taken to make the cars easy to ride in, as the distributing clerks must stand at their work, which is found very exhaustive here as well as in Europe. The springs are very long, and recently a sort of equalizing apparatus has been introduced under the office end of the car. The Swiss postal cars are four-wheeled, though most Swiss passenger cars have trucks, and are otherwise much like American cars.

A sort of cast-iron pavement has been introduced in Switzerland for use where streets and roads cross railroads at grades. The castings are 24×41×3 in., placed with their longest dimension athwart the direction of the road. The sections fit into each other and between the rails, being laid on a bed of broken stone. They are said to be easily laid, easy to drive over, not liable to become slippery, sure to maintain a perfect surface under the heaviest traffic, such as wears ruts in stones, thaw out easily after frost, and cost little for maintenance. They are also used for the driveways through doors and gates where stone pavement soon becomes badly worn.

The great French works at Creusot have just completed three locomotives with compound engines, after M. Mallet's design, to run on the railroad from Bayonne to Biarritz—a watering-place line. Trials have been made with the engines, which are reported to work well. The engines are so designed that the steam may be admitted directly from the boiler into both cylinders, in which way it is claimed that, in case of need, the power of the locomotive, when working nominally as a com-

pound engine, may be multiplied 2½ or three times, and this is expected to be convenient on this railroad, which has a very variable traffic. Whether the engine has the weight necessary to utilize all the power when using direct steam in both cylinders, is not stated.

There are now running on a street railroad in Paris ten engines of the Harding pattern. Each hauls a two-story car seating 50 passengers, and the speed is said to be 11 miles an hour. (Probably this is exceptional, as such a speed is dangerous in a street.)

Record of New Railroad Construction.

This number of the *Railroad Gazette* has information of the laying of track on new railroads as follows:

East Brandywine & Waynesburg.—Extended from Honeybrook, Pa., west to New Holland, 11 miles.
Gulf, Colorado & Santa Fe.—Extended west 5 miles to a point 30 miles from Galveston, Tex.

Wisconsin Central.—The *Portage Branch* is completed by an extension from Packwaukee, Wis., south to Portage, 14 miles.

This is a total of 30 miles of new railroad, making 1,770 miles completed in the United States in 1876, against 920 miles reported for the corresponding period in 1875, 1,242 in 1874, 2,955 in 1873, and 5,312 in 1872.

THE CONSOLIDATION OF ERIE FAST FREIGHT LINES which was effected at a meeting in Detroit last week has been interpreted as a movement towards a re-establishment of through rates on all the trunk lines, concerning which it can have hardly any influence. The Erie connects at Buffalo and Niagara Falls with all three of the Canada lines to Detroit, and each has in connection with the Erie on the east and the Michigan Central on the west a fast freight line; while still another line working over the Erie and the Canada roads solicits freight for Milwaukee over the Detroit & Milwaukee Railroad. These four organizations were kept up with their soliciting agencies to secure freight between New York and the West which for the eastern half of the distance passed over the same road. After some years' experience in trying to get business away from each other, these lines have agreed to combine, distributing the traffic, or the earnings from it, among the several lines in definite proportions determined by the traffic which they have been able to command heretofore. The lines so combining are the Diamond Line, working over the Canada Southern, the Erie & North Shore, working over the Great Western of Canada, the Commercial Express, working over the Grand Trunk from Buffalo to Detroit, and the Erie & Milwaukee, working over the Detroit & Milwaukee line. The natural result will be a considerable saving in expenses for obtaining business, and, what is more important, the avoidance of any temptation to cut rates (as between these lines). Rates between Chicago and Buffalo have this year been subject to "cuts," as well as the through business. The way has been prepared for this agreement by the disastrous results of business over the Grand Trunk and the Great Western. However, the comparatively recent appearance of the Canada Southern in the field made it necessary to have some experience in competition before it was possible to distribute the business among the lines with any certainty that each would get anything like the share which it would naturally command. That is, the ability of the new line to get traffic could only be known after it had been tested.

NEW PUBLICATIONS.

A Treatise on Machine Tools, etc., as made by Wm. Sellers & Co. Philadelphia, 1876. Third edition, revised.

This book, although intended as a trade circular to describe to purchasers the machine tools manufactured by Messrs. Wm. Sellers & Co., is to some extent at least what its title indicates—a "treatise" on the branch of engineering with which it deals. To quote from the preface, the author says: "We do not pretend to make it a treatise on machine tools in general, but we aim to describe such tools as we make, to show their adaptation to their intended uses, and to give some hints as to how to work them to the best advantage."

It describes the machines made by the publishers and has excellent wood engravings of many of them. These include bolt and nut screwing machines, surface-grinding machines, drill presses, cotter drills, double traverse drill, rail-drilling machine, floor-boring machine, horizontal drilling and boring machine, wheel-quartering machine, cylinder-boring machine, drill-grinding machine, boring mills, car-wheel boring machine, punching and shearing machines, plate-shearing machine, straightening machine, hoisting machines, steam and hydraulic riveting machines, planing machines, slabbing machine, shaping machine, slotting machines, all kinds of lathes, axle-centring and sizing machine, steam hammers, moulding cranes, wrecking crane, hydrostatic wheel press, milling machines, bending rolls, gear-cutting machine, turning tables, shafting and injectors.

The book also contains the essential points of the paper on "screw-threads" presented by Mr. Wm. Sellers to the Franklin Institute in 1864, and also the resolutions adopted by that association at that time. The description of their shafting is a short and exceedingly interesting treatise on that subject.

The illustration of the earlier editions of the book were photographs taken from the machines. These photographs were expensive and also were difficult to mount in a book of this kind. These have all been replaced by very good wood-cuts, which, however, are not printed as well as might be expected of the firm which did the work. The book is, however, a model of a trade circular, and gives just the kind of information which a purchaser would want.

Locomotives and Locomotive Building: being a brief sketch of various improvements in locomotive building during the last century, together with a history of the origin and growth of the Rogers Locomotive and Machine Works, Paterson, N. J., from 1831 to 1876.

This is also a trade circular, just issued by the well-known Rogers Locomotive Works. Its title page, which is copied above, describes the scope of the work. The history of this establishment is by far the most interesting part of the book, and if the publishers had made this more full and complete it would have been a much more valuable contribution to the history of railroads than it is now, although as it is it supplies an authoritative statement of what was done by the founder of the Rogers Locomotive Works, such as has never been given to the public before. The earlier engines which were built there are illustrated by wood-cuts and are described in the text. The book also contains a record of various patents and experiments, some of which are very little known, as for example the Chapman engine of 1812. The evidence for believing that this engine had two four-wheeled trucks is not given, and we hardly think that the drawing itself is quite conclusive regarding that point.

The main portion of the book is devoted to engravings, made apparently by the heliotype process, of the engines which are now built at this establishment, and with specifications of them. The engravings we can hardly commend. They look black and smutty, are indistinct, and appear like very poor lithographs. Although not very artistic, they will be found useful, especially with the description annexed:

Ninth Annual Report of the American Railway Master Mechanics' Association.

This publication has been received, printed in the usual form. It contains this year 184 pages, and about a dozen illustrations. As very full abstracts of the proceedings of the Association were published in these pages at the time the convention met, little need be said here about the contents of the book, excepting that besides the proceedings the volume contains on page 123 a report by Mr. Dripps of his experiments on the resistance of different classes of engines on curves, and in an appendix, page 177, a report of experiments made with ordinary American and Mogul engines on the Boston & Albany Railroad.

The Secretary, Mr. J. H. Setchel, writes us:

"The publication [of the report] has been somewhat delayed by not being able to obtain sooner all the information required by the Association. This delay will be partly compensated for by the addition in an appendix of two of the committee circulars for the ensuing year and other interesting information."

"A copy of the report will be immediately sent each member by mail, and all who do not receive it are requested to notify the Secretary at once, giving their correct address, that duplicate copies may be forwarded."

"All committee circulars, so far as received, will be furnished to master mechanics *not members*, on application to the Secretary."

"Chairmen of committees are requested to confer with their members and forward the forms for printing circulars as early as possible."

General Railroad News.

ELECTIONS AND APPOINTMENTS.

Los Angeles & San Diego.—The first board of directors of this new company is as follows: Leland Stanford, D. D. Colton, Mark Hopkins, Charles Crocker, B. B. Redding. The office is in Los Angeles, Cal.

American Electrical Society.—At the annual meeting in Chicago, Oct. 18, the following officers were chosen: President, Gen. Anson Stager, Chicago; Vice-Presidents, C. H. Haskins, Milwaukee; George B. Prescott, New York; Hugh Neilson, Toronto; Elisha Gray, Chicago; E. H. Booth, Mansfield, O.; E. P. Wright, Cleveland; J. J. Dickey, Omaha; Corresponding Secretary and Librarian, F. W. Jones, Chicago; Recording Secretary, C. S. Jones, Chicago; Treasurer, E. B. Chandler, Chicago; Executive Committee, C. H. Summers, Wm. H. Smith, J. J. S. Wilson, H. C. Maynard, G. H. Bliss, Chicago; directors, J. J. S. Wilson, F. H. Tubbs, E. A. Hill, Chicago; C. O. Rowe, Pittsburgh; S. D. Field, San Francisco; J. N. Miller, Chillicothe, O.; George F. Williams, Cincinnati; E. Sholes, Dubuque, Ia.; M. D. Woodford, Toledo, O.; R. C. Clowry, St. Louis; W. W. Smith, Indianapolis; J. W. Tillinghast, Buffalo; C. C. Reed, Detroit; C. W. Ross, Columbus, O.; A. Hayward, Vincennes, Ind.

Folsom & Placerville.—The first board of directors of this new California company is as follows: James O. B. Gunn, Alexander D. W. McCullough, David T. Phillips, Nicholas T. Smith, Daniel Z. Yost.

East Tennessee, Virginia & Georgia.—At the annual meeting in Knoxville, Tenn., Oct. 11, the old board was re-elected as follows: R. T. Wilson, Joseph Jaques, C. M. McGhee, S. D. Reynolds, Jos. H. Earnest, R. H. Richards, Dr. W. R. Sevier, Thos. G. Barrett, Wm. C. Kyle, R. C. Jackson, Joseph R. Anderson, John Talbot, M. K. Jesup, Adrian Iselin, W. T. Walters. The board elected R. T. Wilson, President; C. McGhee, Vice-President and Superintendent; James G. Mitchell, Secretary and Treasurer. The only change is the substitution of Mr. McGhee (who is also General Manager of the Memphis & Charleston) for Capt. Joseph Jaques, who declined re-election.

Western Maryland.—At the annual meeting in Baltimore, Oct. 18, the following directors were chosen on behalf of the stockholders: J. K. Longwell, Carroll County, Md.; Joshua Biggs, Frederick County, Md.; John Welty, George W. Harris, Isaac Motter, Washington County, Md. The majority of the board is designated by the city of Baltimore.

International Bridge.—At the annual meeting in Buffalo, Oct. 18, the following directors were chosen: E. G. Spaulding, E. G. Sprague, Buffalo; John Bell, Belleville, Ont.; Henry Yates, Brantford, Ont.; James Ferrier, Joseph Hickson, L. J. Seargeant, Montreal. The board re-elected Robert Wright, Secretary and Treasurer; E. P. Hannaford, Chief Engineer; W. J. Spicer, Superintendent of Traffic.

Fort Wayne, Muncie & Cincinnati.—The Court has appointed Mr. Elijah Smith, of Boston, Receiver, in place of A. P. Edgerton, relieved at his own request. The change will not take place until Jan. 1.

Central of Georgia.—Mr. B. J. Cubbage, late Auditor, is appointed Forwarding Agent in place of Col. Waring, deceased. Mr. F. H. Thompson succeeds Mr. Cubbage as Auditor.

Evansville & Crawfordsville.—At the annual meeting in Evansville, Ind., Oct. 17, the old board was re-elected as follows: John S. Hopkins, Samuel Orr, J. E. Martin, W. Heilman, D. J. Mackey, Samuel Bayard, C. B. Bement, Evansville, Ind.; J. W. Maddox, Vincennes, Ind.; Joshua Alsop, Carlisle, Ind.; W. R. McKeen, Josephus Collett, James H. Turner, W. K. Edwards, Terre Haute, Ind. The board re-elected J. E. Martin, President and Superintendent; F. Heakes, Secretary and Treasurer.

Western Union.—At the annual meeting in Milwaukee, Oct.

12, the old board was re-elected as follows: W. S. Gurnee, S. S. Merrill, Alex. Mitchell, Hans Crocker, J. W. Cary, J. L. Mitchell, John Johnston, John Plankinton, H. T. Fuller, E. P. Barton, Wm. Shannon, D. W. Dame, H. A. Mills. The board re-elected Alexander Mitchell, President; S. S. Merrill, Vice-President.

Geneva, Ithaca & Sayre.—The directors of this company (successor to the Geneva, Ithaca & Athens) have elected Robert A. Packer, President; John R. Fanshawe, Secretary; Charles H. Ashorne, Treasurer; Robert H. Sayre, Chief Engineer; William Stevenson, Superintendent. The road is controlled by the Lehigh Valley.

Vermont & Canada.—At the annual meeting in Bellows Falls, Vt., Oct. 19, the old directors were re-elected, as follows: Bradley Barlow, St. Albans, Vt.; J. H. Griswold, Newport, R. I.; J. R. Nichols, Haverhill, Mass.; Edward S. Bangs, Samuel Wells, Wm. Mixer, John Curtis, Boston.

Columbus & Toledo.—The following appointments have been made in view of the opening of the road: Col. Philip D. Fisher, Chief Engineer; T. J. Janney, Auditor; W. A. Mills, General Freight and Ticket Agent; M. F. Seymour, Train Master; D. H. Gard, Superintendent of Telegraph; W. S. Merritt, Roadmaster. Messrs. Janney and Mills hold the same positions on the Columbus & Hocking Valley.

Sabine Pass & Northwestern.—Mr. J. Burwell is President and Dr. James Orr Secretary of this new company. The office is at Musk, Texas.

Cherokee.—Dr. S. F. Stephens has been appointed Receiver.

Valparaiso & Western Extension.—The first board of directors is as follows: D. F. Skinner, M. L. McClellan, M. S. Harrold, S. S. Skinner, D. K. Sawyer, W. Hamilton, W. B. McCary, James M. Turner, Edgar White.

Missouri Pacific.—The first board of directors of this company, organized by the bondholders who bought the Pacific Railroad of Missouri at foreclosure sale, is as follows: C. K. Garrison, D. R. Mangum, Mortimer Ward, W. R. Garrison, Russell Sage, A. B. Stout; John P. Kennedy, New York; A. M. Billings, Chicago; Daniel R. Garrison, Oliver Garrison, Webb M. Samuel, D. K. Ferguson, St. Louis; Joseph W. Stephens, Boonville, Mo.

Erie & North Shore Line.—Mr. J. W. Smith, of Chicago, has been appointed General Manager of this fast freight line. His headquarters will be at Detroit.

PERSONAL.

—Capt. Joseph Jaques, for several years past Vice-President and Superintendent of the East Tennessee, Virginia & Georgia Railroad, having declined a re-election to that position, the stockholders, at their annual meeting in Knoxville, Tenn., Oct. 11, passed the following resolutions:

"WHEREAS, Capt. Joseph Jaques, who has long and acceptably performed the duties of Vice-President and Superintendent of the company has resigned and expressed to the board of directors an unwillingness again to accept the position; therefore,

"Resolved, That the thanks of the stockholders, so eminently due, are hereby returned to him for the valuable services which he has through a long series of years rendered to this company, and that we further express our sincere appreciation of the loss we have sustained.

"Resolved, That the directors be and they are hereby instructed to issue a free pass for life to Captain Jaques and wife as a slight testimonial of our regard for his services."

Capt. Jaques continues to be a director of the company.

—Hon. Francis O. J. Smith, formerly a prominent lawyer of Portland, died at his residence in Deering, Me., Oct. 14, aged 70 years. He assisted in securing the construction of the first telegraph line in the United States, from Washington to Baltimore; he was also one of the builders of the Cumberland & Oxford Canal (now abandoned) and built the Portland & Oxford Central Railroad.

—Hon. Wm. Stewart, a director and the original projector of the New Castle & Franklin Railroad, died at his residence in Mercer, Pa., Oct. 17, aged 65 years.

—Mr. Haywood Cutting, Vice-President of the Indianapolis, La Porte & Michigan City Company, died suddenly in New York last week, having just returned from a trip to Europe for his health.

—Col. Waring, Forwarding Agent of the Central Railroad of Georgia, died in Savannah recently of yellow fever.

—Mr. E. A. Parker, General Passenger and Ticket Agent of the Kansas Pacific road, who has been dangerously sick for some time, has so far recovered as to resume work in his office at Kansas City.

—Mr. A. P. Edgerton is relieved at his own request from the position of Receiver of the Fort Wayne, Muncie & Cincinnati Railroad.

—Capt. Martin P. Muller, a well known engineer, died of consumption at Albany, Ga., Oct. 18. He was Engineer of the Wilmington & Manchester road during its construction, and for some years past has been Assistant Engineer of the Atlantic & Gulf Railroad.

—Mr. R. H. Shoemaker, Superintendent of the Cincinnati Division, Cleveland, Columbus, Cincinnati & Indianapolis Railway, is about to resign that position to accept one in connection with the Illinois & St. Louis Bridge Company at St. Louis.

—Mr. J. M. Berrian, long Chief Engineer of the Michigan Central Railroad, but retired for many years because of age, died suddenly at Detroit, Oct. 12.

THE SCRAP HEAP.

Locomotive Construction in Germany.

According to an article in the *Deutsches Handelsblatt*, the German locomotive shops are prepared to construct 1,850 to 1,900 locomotives yearly, while the home demand is for about 600 or 650 yearly. However, during the twelve months previous the German companies had ordered but 180 engines, and while the price of a freight engine in 1872 and 1873 varied from \$17,500 to \$18,000, a week before the article in the *Handelsblatt* was published the works had submitted proposals to furnish engines of the same kind at \$7,000! At the latter price it is estimated that the builders lose \$1,500.

Heretofore a market has been found for the 12,000 or 13,000 locomotives produced in Germany in excess of its own needs chiefly in Russia, Austria, Switzerland, and to some extent in Italy, Sweden, Norway and Denmark. In the last-named countries, however, the French and Alsatian competition was very strong. Henceforth, in Russia, the companies are compelled to have at least half of their engines of Russian manufacture, and as to the other half, the duties are so high as to be prohibitive, and so this market is lost.

Examining the production of locomotives in other countries this German journal states that Austria can construct about 400 and Switzerland about 40 yearly; that in France this manufacture is at least as well established and with as great capacity for production as in Germany.

Norway, Sweden, Denmark and Italy produce few or none (No mention is made of the Belgian production, which, however, is large, and is largely exported).

The article then gives the import duties charged at the present time in the different countries, which are as follows,

per 100 kilogrammes (220 lbs.) of weight, the percentage of the present value being subjoined:

	Per 100 kilos.	Percent. of value.
Germany.....	\$1 00	1.6
England.....	.....	.....
France.....	4 00	13.3
Austria.....	2 00	3.3
Russia.....	3 70	6.1
Belgium.....	0 80	1.3
Holland.....	.....	1.0
Denmark.....	\$282 per locomotive	1.3
Switzerland.....	0 80	1.3
Italy.....	1 80	2.7

In the above table the percentage is on an average valuation of \$27.25 per 100 lbs., except for France, where the valuation is but half as much—probably due to a mistake.

The article was written as an argument concerning a change in the import duties of Germany which is soon to be made.

OLD AND NEW ROADS.

Southern Railway and Steamship Association.

The report of Mr. Virgil Powers, the General Commissioner, made at the annual convention on the 4th inst., calls special attention to the statement of his predecessor, Mr. Albert Fink, that "the want of integrity on the part of railroad and steamship managers" is the reason why the Association has not been so advantageous to its members as it might have been. And he emphatically it is the sole cause. The whole country seems to have become demoralized, the railroad managers particularly so, and I have little hope of much benefit from your Association until the men now managing change their course, or they are removed and more reliable men put in their places by the owners of this vast and valuable property, which is being destroyed by them."

Mr. Powers reported that the proposition for settling old balances which was accepted by the debtor companies at the meeting on Aug. 30 was so liberal to these companies that they were expected to carry it out promptly by accepting the proposed drafts; but they have not done so, and the Charleston and New York and Boston steamship companies positively refuse to accept the drafts or pay the cotton balances.

A committee to which this matter was referred recommended that the presidents of the railroad companies (the Georgia and the South Carolina) connecting with these steamship lines be requested to use all their influence to secure the payment of the balances due by the steamship lines, and report the result in 15 days to the General Commissioner, who then might take such action as he deemed best if payment were not made. This report the Association adopted.

A letter was read from W. J. Magrath, President of the South Carolina Railroad, stating that in May last the South Carolina, the Georgia and the Central of Georgia companies agreed to divide only business from and to Boston, New York, Philadelphia and Baltimore. Mr. Magrath gave notice of this agreement Sept. 25, and at the convention notified the General Commissioner that he would expect the accounts to be made to conform to this agreement, beginning with September.

With regard to this, the convention passed, the Georgia Railroad alone dissenting, a resolution expressing its surprise at an agreement "relating to a division of business wholly at variance with the agreements entered into under the contract of agreement of this Association," and the General Commissioner was instructed to adhere strictly to the rules of the Association in his monthly statements, settlements of balances, etc., until the existing basis for dividing business is changed as provided by the rules of the Association.

Brotherhood of Locomotive Engineers.

The annual session of the International Grand Division began in Detroit, Mich., Oct. 18. An address of welcome was delivered by Mayor Lewis, which was appropriately reported to by Grand Chief Engineer T. S. Ingraham. The business meeting, which continued several days, was private, and no further reports thereof have been received.

Central, of New Jersey.

A very remarkable and well concerted strike was organized and carried out by the enginemen and firemen of this road this week. It will be remembered that in August last a general reduction in the pay of the employees of the road was made, but, after conference with the officers, the enginemen and firemen secured exemption from the reduction. They charge, however, that after that time individual reductions were made, and that their trips were lengthened and pay refused them for extra trips and over time, thus practically reducing their pay without notice. Committees were appointed to confer with President Knight, but they failed to see him, and the impression was conveyed that he declined to see or talk with them. Officers of the road say that this impression resulted entirely from a misunderstanding, but there is no doubt that it existed and that the men were much irritated in consequence. The strike was finally decided on, and on the evening of Oct. 23 Superintendent Ricker was notified that a strike would take place, and three days' delay, which he asked for, was refused.

Accordingly, at midnight of Oct. 23 every train which was on the road was drawn to the nearest siding, the fire from the engine drawn, and the engine abandoned. All traffic was of course stopped, and on the morning of Oct. 24 not a train was in motion on the road. The immense amount of trouble caused by this sudden suspension can hardly be appreciated by those who are not familiar with the workings of a line with a great suburban traffic like that of the Central. At all points where competing lines were accessible arrangements were made for the temporary transfer of business, and in the afternoon of that day the officers of the road succeeded in sending out a few passenger trains, the engines being run by the master mechanics and firemen. Meanwhile the officers of the road were endeavoring to come to a settlement with the strikers. They declined to send a committee to New York, and President Knight, with Superintendent Ricker and Consulting Engineer Moore, went to Phillipsburg, where a large number of the strikers were assembled. A conference, lasting the entire afternoon, was held there, which ended by the enginemen presenting the following conditions, which were accepted on behalf of the company:

First—On and after Oct. 1, 1876, the rate of wages for all enginemen who have been in the service of the company a term of two years shall be \$90 per month for 2,600 miles or less. All miles run in excess of 2,600 shall be paid for *pro rata*, except coal and freight on the Lehigh & Susquehanna Division, which shall be 2,080 miles per month, or 80 miles per day, at the same rate per month.

Second—All firemen promoted by the company to the position of engineers for the first year shall receive \$75 per month for the same services and *pro rata* for extra mileage.

Third—For the second year they shall receive \$85 per month and *pro rata* for extra mileage.

Fourth—The oldest engineers in the service of the company to have the preference of engines and trains, when competent and worthy, and in case of a surplus the oldest in the service to have the preference of work.

To this was added a provision that no engineman should be discharged on account of the strike, and that to avoid trouble in future the proper officer should receive a committee of enginemen and submit all difficulties to arbitration.

President Knight accepted these conditions, and, as soon as the necessary orders could be made and telegrams sent along the road, the men returned to work. By the morning of Oct. 25 traffic was fully resumed, after a suspension of 24 hours, and all trains were running as usual.

On the evening of the 23d a local passenger train, the engine of which was run by Master Mechanic Williams, was thrown from the track by a misplaced switch, two passengers being killed and a number hurt. It was charged that the switch had been misplaced by some of the strikers, but there is so far no proof as to who the perpetrator of the crime was. Naturally, the abrupt suspension of traffic produced much annoyance and some individual cases of hardship among passengers who were on trains left upon the road, which was one of the unpleasant features of the strike.

Atlantic, Mississippi & Ohio.

In the United States Circuit Court at Richmond last week several orders were entered in the foreclosure suit. The first ordered a reference to a master to determine the amount of all the prior or divisional mortgages and of the property actually covered by those liens; the amount of interest due and unpaid on those mortgages; the property acquired subsequently to the consolidation and not covered by the divisional liens, and finally the amount of judgment liens outstanding and of bonds pledged as security. The record order appoints Matthew F. Pleasants Master to make the examination and report called for by the first order.

The next order refers to the master a petition for payment of wages due to employees, with instructions to ascertain the amount due and to whom, also whether any of the claims have been assigned and to whom. A further order makes a special reference of a claim of the Pennsylvania Steel Company for rails furnished.

Still another order sets aside a prior order authorizing the Receivers to redeem certain bonds hypothecated and authorizes them to arrange for the extension or transfer of the loans protected by the pledge of those bonds, or to borrow money to pay such loans and issue certificates of indebtedness for such new loans. The bonds redeemed are to be held subject to order of the Court.

A final order directs the payment of several small sums, \$10,500 in all, to the trustees of the several divisional mortgages, to cover expenses incurred by them in the litigation in this case.

Canadian Pacific.

The contract for Section 15 has been awarded to Charlton & Co., of Montreal, for \$1,500,000.

Bangor & Calais Shore Line.

The work of finally locating the line was begun this week, and the company will soon be ready to let contracts for grading. It is stated that no contracts will be let except to residents of towns which have voted aid to the road. Proposals for ties are also to be called for soon.

Northern Central.

The new grain elevator at Canton, Baltimore, has been leased to Israel M. Parr & Son, of Baltimore, for five years at a rental of \$23,000 per year.

Davenport & Northwestern.

Tracklaying has been begun on the extension from East Davenport into Davenport, Ia. Work is also progressing actively on the freight and passenger depots in Davenport.

St. Louis & Southeastern.

Gen. James H. Wilson, Receiver, has issued the following order:

"1. From and after the 1st of October, requisitions for materials and supplies of every sort will be made upon the Receiver through the General Superintendent, and no purchases will be made except by the Receiver or upon his order.

"2. Agents will make their requisitions for stationary supplies, as prescribed above, on the 10th of each month and at no other time.

"3. All surplus materials and scrap for sale will be reported to the Receiver through the General Superintendent, by the head of the department having it in charge, and sale will be made only by the Receiver or upon his order."

Dividends.

Dividends have been declared by the following companies:

Boston & Albany, 4 per cent., semi-annual, payable Nov. 15.

Transfer books close Oct. 21.

Boston & Maine, 3 per cent., semi-annual, payable Nov. 15.

Transfer books close Oct. 18.

Boston & Providence, 4 per cent., semi-annual, payable Nov. 15.

Car Trust, of Pennsylvania, 1½ per cent., quarterly, payable Nov. 1.

Railway Equipment Trust of Pennsylvania, 2 per cent., quarterly, payable Nov. 1.

Concord Railroad Company, 5 per cent., semi-annual, payable Nov. 1.

The Boston & Albany drops from 5 to 4, and the Boston & Maine from 3½ to 3 per cent.

Meetings.

The following companies will hold their annual meetings at the times and places given:

Valley, of Virginia, at the company's office in Staunton, Va., Nov. 8, at noon.

St. Paul & Pacific (special), at the office, No. 23 Fifth avenue, New York, Nov. 15, at noon.

Bedford, Brownstown & Madison.

Aid to the amount of \$125,000 has been voted by towns along the line of this projected road, and several towns are yet to vote. Arrangements are being made to survey and locate the line so that contracts can be let for the whole road from Bedford, Ind., to Madison before spring.

Pennsylvania Transportation Company.

Argument was to be heard this week on the *quo warranto* proceedings begun by the Attorney General of Pennsylvania to test the right of this company to build the projected extensions of its oil-pipe line to Philadelphia and Baltimore. At the same time complaints made by a number of persons owning property in Armstrong and Indiana counties against the company for unlawful entry upon their lands were to be heard.

East Freight Lines Consolidated.

At a meeting held in Detroit, Oct. 19, it was agreed to consolidate the Erie & North Shore, the Erie & Milwaukee, the Commercial Express and the Diamond lines. The consolidated line will be known as the Erie & North Shore Line, and its principal office will be in Detroit. It was decided, in consequence of the consolidation, to diminish the number of officers and men employed, and the number of branch offices.

Pittsburgh & Northwestern.

It is now proposed to complete this road from Pittsburgh to Youngstown, O., as a narrow-gauge, and there is talk of resuming work this fall. There was a great deal of work done on it last winter by the contractors, Weiss, Britton & Co., but the company became embarrassed financially, and work was stopped. It was originally intended to be a standard-gauge road.

Ogdensburg & Lake Champlain.

It is said that the seizure of this road on behalf the stockholders was a complete surprise to the Central Vermont man-

gers. Consequently most of the equipment has been secured with the road, there having been no time to run it off. The rent has been in default a year, and soon after the first default was made the Ogdensburg directors offered to take the road and cancel the lease, but the Central Vermont declined to accede to this unless an appraisal of supplies on hand and improvements made by the Central was first made. It is understood that the receivership is only temporary, and that the road will soon be in possession of the stockholders. The case in the New York Supreme Court will be heard Oct. 31.

Arrangements have been made to carry through business without interruption or transfer. All existing freight contracts will be carried out by the new management.

Logansport, Crawfordville & Southwestern.

Mr. C. W. Hassler, who is acting for the first-mortgage bondholders, has issued a circular explaining the present position of affairs. The proceedings have been delayed by the sickness of the Master and by the great number of small claims presented, all of which have to be examined. Mr. Hassler has deposited with the Court \$762,000 out of \$1,500,000 bonds, and controls \$200,000 more, but is opposed by a small party among the bondholders.

St. Joseph & Southwestern.

It is proposed to build a railroad from St. Joseph, Mo., or from a convenient point on the St. Joseph & Denver City road, southwest to a connection with the Atchison, Topeka & Santa Fe at or near Great Bend in Boston County, Kansas.

Hamilton & Northwestern.

The controversy between this company and the Great Western has been settled finally by the courts, and the Northwestern secures the right to cross the Great Western tracks at grade at Wellington Square, Ont. Work on the track can now proceed without further interruption.

Central of Iowa.

The United States Circuit Court has denied an application made by the bondholders' committee for the removal of Mr. J. B. Grinnell, the present Receiver. The Court expressed itself as being well satisfied with his management of the property.

Fitchburg.

A contract for lowering the grade and regrading the track of the Watertown Branch at Watertown, Mass., has been let to C. O'Neil, of Somerville, Mass., who begins work at once.

Union Railroad, Transfer & Stock Yards.

The Indianapolis City Council has passed the ordinance authorizing the issue of \$500,000 city bonds to this company in exchange for an equal amount of the first-mortgage bonds of the company. The money is to be used in the construction of a belt road around Indianapolis, out of the city, to connect all the lines entering the city, and for the establishment of extensive union stock yards at a convenient point. The bonds are to be held in trust until the work is completed.

St. Paul & Pacific.

In the case of De Graff & Co. against the St. Paul & Pacific Company the Supreme Court of Minnesota has decided that the law passed by the Minnesota Legislature in 1874, which gave parties who had advanced money, labor or materials for the construction of the road a lien upon the land grant, is invalid, because it impairs the contract between the State of Minnesota and the company.

De Graff & Co., however, still have a suit pending which may enable them to recover at least a part of the debt due them. In that suit they obtained a judgment for \$475,000 in the United States Circuit Court. The case was appealed to the Supreme Court, where it is still undecided.

Ss. Louis, Iron Mountain & Southern.

This road is just now doing a very heavy Texas business, and it is said that there is almost a freight blockade at Texarkana. Some delay is probably caused at that point by the necessary transfer of freight cars from the trucks of 4 ft. 8½ in. to those of 5 ft. gauge.

New York & Oswego Midland—Western Extension.

The bondholders' committee notifies holders of Western Extension bonds that they must deposit their bonds with George W. Farlee, Secretary, at No. 25 Nassau street, New York, by Nov. 1, in order to get the benefit of the purchase of the Western Extension at foreclosure sale.

Richmond & Danville.

The section of 48 miles from Danville, Va., to Greensboro, N. C., is to be entirely relaid with new rails.

Waterville & Washington.

The grading of this extension of the Central Branch, Union Pacific, is now nearly finished, and track-laying has begun at Waterville, Kan., Oct. 16. The iron is all on the ground and the road is to be finished in November.

Eastern.

It is said that this company has declined to renew its ten year coupon notes, the trustees holding that under the terms of the settlement with creditors such notes should be exchanged for the certificates of indebtedness to be issued under the new mortgage. It is probable that by agreement of the parties concerned a case will be made up and submitted to the Massachusetts Supreme Court next month to decide the legal questions involved.

The wages of the locomotive engineers have been reduced about 15 per cent. It is said that they will not submit, and there is talk of a strike.

Pacific of Missouri.

In the United States Circuit Court in St. Louis, Oct. 19, the Court denied a motion to review the proceedings in the foreclosure suit made on behalf of some of the stockholders.

On Oct. 21 the Master in Chancery presented a long report setting forth the result of the sale and exhibiting in detail the various claims filed and the amounts still due the road from other parties. The report recommended that \$600,000 in cash, or an approved bond to pay cash when called upon, be required from the purchaser. The balance of the purchase money will be payable in bonds. The cash required will be needed to meet the claims against the road.

The purchasers have organized a new company, and its articles of incorporation were filed with the Secretary of State of Missouri, Oct. 21. The name of the new company is the Missouri Pacific Railroad Company; its capital stock is to be \$3,000,000, and the principal office will be in St. Louis, with a branch in New York.

A telegram from St. Louis says that on Oct. 24 the court made an order that, upon the payment of \$50,000 cash and the execution of a properly secured bond for \$550,000, the road should be transferred to James Baker, as trustee for C. K. Garrison, and that a deed for the property be given to him by the Master in Chancery. This order was in conformity with the recommendations made in the Master's report.

Michigan Central.

The paint shop owned by this company at Grand Trunk Junction, near Detroit, caught fire on the night of Oct. 21 and was burned, with 15 cars which were in it at the time. The loss is estimated at \$20,000.

Mr. Henry S. Bennett, who claims to act as attorney for 450 stockholders of the company, has addressed a letter to President Sloan urging upon the managers of the company the necessity of restoring rates on all business to the former stand-

ard, and also of relieving the company from the burdensome leases and contracts which now prevent it from paying dividends to its stockholders.

Mr. Bennett does not state how much stock is held by the parties whom he represents, nor does he show how the company is to withdraw from leases legally made and ratified, or how it is to increase rates and maintain them, single-handed, at the higher point for which stockholders ask. No formal answer to his letter has been made.

Illinois Midland.

The Receiver has been authorized by the Court to borrow \$30,000 to be used in making necessary improvements in the condition of the road.

Western Counties.

The entrance of this road into the town of Annapolis, N. S., and the connection with the Windsor & Annapolis road have been finally located. The contract for the grading of the Annapolis section has been let to Mr. E. Matatali, of Annapolis.

Valparaiso & Western Extension.

A company by this name has filed articles of incorporation in Indiana. The object of the company is to build a new connection between the Chicago & Lake Huron and the Pittsburgh, Fort Wayne & Chicago roads near Valparaiso. The road will be 2½ miles long, and the capital stock is \$50,000.

Chicago, Burlington & Quincy.

The trustees under the mortgages gives notices that under the contract the sum of \$365,088.11 has become applicable to the purchase of Illinois Grand Trunk bonds. Proposals to sell bonds to the above amount, or any part thereof, at a price not above par and accrued interest, will be received by John N. Denison, Trustee, at the company's office in Boston up to Oct. 28.

A Chicago paper gives the following as the new rates of wages to be paid to engineers and firemen:

Apprentice firemen on switch engines, first year, \$1.40; second, \$1.50; third, \$1.60; On the road, first year, \$1.50; second, \$1.75; third, \$2.00. Engineers on switch engines, first year, \$2.25; second, \$2.50; third, \$2.85. On the main line, first year, \$2.50; second, \$2.75; third, \$3.00. Old engineers have been receiving on the Galesburg Division \$3.50, and on the main line, \$3.87½.

Portland, Salt Lake & South Pass.

Of this road (late the Portland, Dalles & Salt Lake) the Salt Lake Herald says: "Our correspondent at Corinne informs us that three scraper teams and a man or two have been at work on the projected railway to Malad recently, and have completed the grading of about half a mile of the level country looking toward Idaho. The people of Corinne do not appear to be greatly excited on the subject of becoming the terminus of a great railroad, and some of them complain that the road will not be finished during this century unless another scraper team is put on. Colonel Chapman, the head and front of the new road, has left for the Oregon legislature, where a little lobbying is to be done this winter to prevent the loss of the company's subsidy, and it is probable that the Corinne movement is simply a picket skirmish, the news of which has been telegraphed east and west in glowing colors, and will sound well in Oregon as well as at Washington. There is a good deal of lobbying to be done before the enterprise attains a safe status, and it is to be presumed that the managers are at work with a definite object. It is to be hoped that success may crown their efforts."

Valley, of Ohio.

A party representing capitalists interested in the Marietta, Pittsburgh & Cleveland road have lately been examining the line of the Valley road from Canal Dover, O., to Cleveland, and it is said they intend to aid in its completion if the reports made are favorable.

Texas & Pacific.

The engineers have already selected the depot grounds in Weatherford, Parker County, Tex., to which point the company is required to build by next July, to preserve its land grant from the State. Weatherford is about 30 miles west of the present terminus at Fort Worth, and is in a country which is rapidly filling up with settlers.

The engineers are now laying out the line of the Transcontinental Division from Sherman to Fort Worth. The track of this division from Sherman to Texarkana is being put in good condition and trains are now run at an increased rate of speed.

Waco, Fairfield & Palestine.

Surveys are now being made for this road, which is to run from Waco, Tex., eastward to Palestine, about 80 miles. The company is to be organized shortly under the new general law.

Houston & Texas Central.

The engineers of this company have located and secured the land needed for depot grounds and yards in Weatherford, Tex., which is to be the terminus of the extension of the Waco Branch, on which work was lately begun. Weatherford is about 95 miles north by west from Waco, and it is said that the company intends to have the road finished to that point next Summer, the object being to prevent too great a diversion of trade to the Texas & Pacific.

Atlantic & Pacific Telegraph.

A dispatch from Davenport, Ia., dated Oct. 20, says: "This morning the Atlantic & Pacific Telegraph Company served notices on the Chicago, Rock Island & Pacific Railroad Company that it would proceed to condemn a right of way for its telegraph along the railroad. The company presented to Judge Hayes a bill for an injunction against the telegraph company to restrain such condemnation, and to restrain entry upon the right of way of the railroad. Judge Hayes granted the injunction. This week the Atlantic & Pacific also condemned a right of way along a part of the Kansas City, St. Joseph & Council Bluffs Railroad in Pottawattamie County, and was proceeding to condemn in Fremont and Mills counties. To-day application was made by that railroad company to Judge Reed of the District Court for the Council Bluffs District, for an injunction. After notice to the telegraph company to restrain further condemnation and to restrain the use of the ground already condemned, and after a full hearing, Judge Reed granted the injunction. Some interesting legal questions are thus presented as to the right of a telegraph corporation to condemn a right of way along a railroad, previously acquired, and they will doubtless be settled only by a decision of the Supreme Court of Iowa."

Fort Wayne, Muncie & Cincinnati.

The trouble as to the receivership of this road has been adjusted by an agreement between the parties in interest. Mr. A. P. Edgerton, the present Receiver, is to retire, and will be succeeded by Mr. Elijah Smith, of Boston, who represents the bondholders. The Court has approved and has made the necessary orders for the change, which will take place Jan. 1.

Chicago, Milwaukee & St. Paul.

Local papers state that the company has agreed to extend the Sabula, Ackley & Dakota road from its present terminus at Marion, Ia., to Cedar Rapids, about six miles, provided the Cedar Rapids people will secure the right of way and suitable depot grounds. It is thought that this will be done.

The La Crosse (Wis.) Republican says of the new bridge over the Mississippi at that place:

"About 500 men are actively employed in building the piers,

constructing the bridge, rip-rapping the west bank of the river and in the quarries."

"The last or west caisson was placed in the river on Thursday afternoon, and the busy regiment of workmen, under command of Col. Sheldon, are making things go lively in that vicinity. There is much work to be done on the Minnesota shore; but the bridge will be in use from and after the close of navigation, and when spring comes the entire work will be completed in accordance with all of the suggestions that experience and science can suggest, so that little or no damage will occur to navigation. During the erection of the piers, and since closing the east channel at the head of Minnesota Island, the stream pressed very hard against the west bank at La Crescent landing; but with heavy stone facing on the bank, and with the completion of the last pier, the water will wear, and apparently is wearing or making a wider channel, so that hereafter, or as soon as the entire work is finished, with auxiliary relief and security to prevent the stream from cutting into the west bank, or between the islands and the west bank, rafts and boats will probably run safely in the central or widest opening or channel, which is 250 feet in width, instead of hugging the west bank or running between the western pier and the west bank of the river."

Sabine Pass & Northwestern.

A company by this name has been organized to build a railroad from Sabine Pass, Tex., north by west, following the general course of the Neches River to Nacogdoches and Rusk, which latter place is connected with the International & Great Northern road by a branch line. The distance from Sabine Pass to Rusk is about 180 miles.

Galveston, Harrisburg & San Antonio.

This company has finally concluded an agreement to build a branch from Marion, Tex., northwest to New Braunfels. The distance is about eight miles. The company is to receive a subsidy of \$75,000 for the road and an additional \$15,000 in consideration of which the bridge to be built across the Guadalupe River near New Braunfels is to be made a wagon as well as a road bridge.

Houston & East Texas.

Meetings are being held along the line of this road to secure subscriptions in aid of it. The route to be adopted will depend to some extent upon the subscriptions secured in different places, although its managers state that their wish is to secure the line which will bring the road to the timbered country in as short a distance from Houston as possible, as they expect the lumber traffic to be the chief business of the road for a time.

Gulf, Colorado & Santa Fe.

An additional section of five miles has been completed and opened, making the road 30 miles long from Galveston, Tex., westward. The end of the track is now in Brazoria County and 12 miles east of Arcola. With the exception of the long pile bridge over Galveston Bay the work thus far has been easy and the grades light, the road rising only 47 feet in the 30 miles.

New Jersey Midland.

The Receivers' statement of the earnings of the road for September is as follows:

	1876.	1875.	Increase.	P. c.
From passengers.....	\$20,790 50	\$18,108 90	\$2,681 60	14.8
Freight.....	27,787 16	29,696 67	2,200 49	5.5
Milk.....	14,100 00			
Mail and miscellaneous....	2,699 10	2,414 12	284 98	11.9

Total earnings.....\$65,376 76
Deduct drawbacks, advance charges, legal expenses, old material, etc.....12,534 58

Balance.....\$52,842 18
Working and terminal expenses.....35,675 03

Net earnings.....\$17,167 15

The earnings per mile this year were \$765 gross and \$201 net; the expenses were 73.74 per cent. of receipts. The Receivers' cash account is as follows:

Cash on hand Sept. 1.....	\$225 66
Receipts of road.....	65,376 76
Cash received on note.....	1,000 00
Loans.....	8,947 60

Total.....\$73,649 92
Working and terminal expenses.....\$35,675 03

Construction account.....5,344 43

Equipment account.....3,637 94

Right of way account.....3,402 12

Drawbacks, advance charges, miscellaneous accounts.....15,393 77

Loan account.....10,293 86

Balance, Oct. 1.....\$902 77

For the nine months ending Sept. 30, the gross earnings of the road were \$478,351.70, or \$5,595 per mile.

Geneva, Ithaca & Sayre.

The organization of this new company by the parties who bought the Geneva, Ithaca & Athens at foreclosure sale has been completed. The officers of the road are all connected with the Lehigh Valley, and the road will be worked as an extension of that line.

It is announced that the overdue coupons on the Ithaca & Athens first-mortgage bonds, subject to which lien the road was sold, will be paid at the Lehigh Valley office in Philadelphia on and after Nov. 1.

Columbus & Toledo.

The first section of this road from Columbus, O., to Marion, 45 miles, is now opened for traffic, trains having begun to run regularly Oct. 23. The tracklayers on the northern end of the line are making steady progress, and expect to reach Toledo early in November. The ballasting is being done as fast as possible, and the whole road will probably be opened some time in November. The stations on the road so far completed and opened, with the distances from Columbus, are: Elmwood, 9 miles; Powell, 14; Hyatt's, 19; Delaware, 24; Radnor, 30; Prospect, 36; Owens, 41; Marion, 45. The depot buildings on this section are all finished and the telegraph line is up, the water stations and sidings all in order. The road is said to be in very good condition for a new line; it has been carefully located, has no heavy grades and but few curves.

Nashville, Chattanooga & St. Louis.

This company reports earnings for the three months ending Sept. 30, being the first quarter of the current fiscal year, as follows:

	1876.	1875.	Inc. or Dec.	P. c.
Gross earnings.....	\$391,163 48	\$401,163 88	Dec. \$9,997 35	2.5
Expenses and taxes.....	253,233 27	230,936 29	Inc. 22,296 98	9.7

Net earnings.....\$138,108 21

Per cent. of expenses.....64.71

The earnings this year were \$1,148 per mile, gross, and \$405 per mile, net. For September the gross earnings were \$132,828.15; net earnings, \$48,829.07.

Cincinnati Southern.

The Cincinnati Commercial of Oct. 17 says: "The trustees of the Cincinnati Southern Railroad yesterday opened proposals

for the purchase of \$1,000,000 city bonds. This issue is of the \$6,000,000 last voted and in addition to the \$3,000,000 already negotiated. The bidders were few, and all of Cincinnati, and their proposals to purchase were rejected because of their not being satisfactory to the trustees. Re-advertising will be necessary."

Vermont & Canada.

At the annual meeting in Bellows Falls, Vt., Oct. 19, no direct vote was taken on the proposal of the Central Vermont Company to buy the road, but a long series of resolutions was passed, setting forth the company's case against the Central Vermont, and instructing the directors to apply at once to the Vermont Legislature for some measure of relief which will enable the company to secure its rights.

St. Paul & Sioux City.

This company's statement for September is as follows:

Freight earnings.....	\$35,571 62
Passenger.....	11,195 56
Express, mail, etc.....	2,190 26
Total earnings (\$401 per mile).....	\$48,957 44
Expenses (59 per cent.).....	29,015 64
Net earnings (\$163 per mile).....	\$19,941 80
Rents received.....	97 50
Balance from August.....	93,860 06
Total.....	\$113,899 36
State taxes.....	\$970 15
Insurance.....	308 35
Interest on floating debt.....	858 18
	2,145 63
Balance to October.....	\$111,753 73

There is a gain of \$17,893.67 during the month. As compared with September, 1875, there is a decrease of 0.8 per cent. in gross and of 15 per cent. in net earnings. For the nine months ending Sept. 30 the gross earnings were \$409,925.25; net, \$140,504.33, being an increase of 18 per cent. in gross and 105 per cent. in net earnings over 1875.

Sioux City & St. Paul.

This company reports for September as follows:

Freight earnings.....	\$22,267 37
Passengers.....	7,234 52
Express, mail, etc.....	2,782 54
Total earnings (\$218 per mile).....	\$32,284 43
Expenses (61.7 per cent.).....	19,929 47
Net earnings (\$83 per mile).....	\$12,354 96
Rents received.....	119 67
Equipment bond sinking fund.....	1,261 34
Balance from previous month.....	17,898 79
Total.....	\$31,604 76
Elevator rents.....	\$268 33
Illinois Central track rent.....	1,605 00
Special equipment fund.....	2,448 00
State taxes.....	816 55
Insurance.....	200 00
	5,337 88
Balance, Sept. 30.....	\$26,266 88

Being a gain of \$3,999.51 during the month. As compared with September, 1875, there is an increase of 15.4 per cent. in gross and 5 per cent. in net earnings. For the nine months ending Sept. 30 the road earned \$260,517.32 gross and \$63,205.39 net, being an increase of 35 per cent. in gross and 176 per cent. in net earnings.

East Tennessee, Virginia & Georgia.

At the annual meeting in Knoxville, Tenn., Oct. 11, resolutions were adopted favoring the suspension of all traffic on Sundays, and requesting the President to confer with connecting lines as to the suspension of the Sunday through trains. The stockholders also passed resolutions regretting the withdrawal of Capt. Jacques from the position of Vice-President and Superintendent of the company.

Peoria & Rock Island.

Receiver Hilliard reports to the Court for July and August as follows:

Cash balance July 1.....	\$10,417 03
July receipts.....	29,417 97
August receipts.....	27,356 16
Total.....	\$67,191 16
July disbursements.....	\$27,586 75
August disbursements.....	34,605 44
	62,192 19
Balance, Sept. 1.....	\$5,498 97

The July receipts were \$1,831.22 more than the disbursements; in August the disbursements were in excess by \$6,749.28, making an excess of payments over receipts of \$4,918.06 for the two months.

Folsom & Placerville.

A company by this name has filed articles of incorporation in California. The line is to extend from the Sacramento Valley Railroad at Folsom, Cal., east by north by Lake, Shingle Springs and Diamond Springs to Placerville, about 40 miles. The capital stock is to be \$1,000,000. It is apparently the intention to include in the new line the existing road owned by the Placerville & Sacramento Valley Company, which is in operation from Folsom to Shingle Springs, 26 miles, leaving only 14 miles of new road to be built.

Wisconsin Central.

The track of the Portage Branch is completed to Portage, Wis., and trains were to begin running through last week. The branch runs from the Main Line at Stevens Point, Wis., nearly due south to Portage, 66 miles, passing through a pretty well settled country heretofore without railroad facilities. The Southern end of the branch, for about 15 miles, runs parallel and near to the Fox River. The company receives a land grant for the line.

Stockton & Visalia.

At a recent meeting of the directors it was resolved that it was expedient and advisable to buy so much of the Stockton & Copperopolis road as is used in common by both roads, provided it can be done and the price does not exceed \$400,000 in gold. The road referred to extends from the water front in Stockton, Cal., to Peter's station, 15 miles, so that the limit of price fixed is \$26,667 per mile.

Los Angeles & San Diego.

A company by this name has filed articles of incorporation in California. The capital stock is to be \$5,000,000, and the road is to extend from Los Angeles by Anaheim southeast to San Diego, 140 miles. The corporations are all connected with the Central or the Southern Pacific and the organization is doubtless intended to cover the proposed extension of the Southern Pacific from Anaheim to San Diego.

American Electrical Society.

The annual meeting of this society was held in Chicago, Oct. 18, Gen. Anson Stager presiding. The Treasurer reported expenditures for the year \$586.18, and a balance on hand of \$80.67. The Librarian reported the addition of a number of valuable books to the library; the journal published by the society had been successful and would hereafter be contributed

to by some eminent electricians. Mr. Sholes, of Dubuque, Ia., reported the formation of an auxiliary society there.

After electing a number of new regular and honorary members, the officers for the ensuing year were chosen. A report on some proposed amendments of the constitution, relating particularly to the formation of auxiliary societies, was presented and referred to a new committee, to report next year.

Mr. E. M. Barton read a paper describing a new galvanometer invented by C. H. Haakins, of Milwaukee. Several other papers were presented and ordered published in the journal of the society. The society then adjourned to meet again in Chicago in October, 1877.

East Brandywine & Waynesburg.

A special meeting of the stockholders is to be held at Honeybrook, Chester County, Pa., Oct. 30, for the purpose of voting on a proposed new lease of the road to the Pennsylvania Railroad Company.

The extension of the road from the former terminus at Honeybrook (Waynesburg), Pa., westward to New Holland in the Conestoga Valley is now completed and a train was to run from New Holland Oct. 23. The extension is 11 miles long, passing for the most part through an old and thriving farming district, and reaching several valuable deposits of iron ore. The new lease to the Pennsylvania is for the purpose of including this extension.

Toledo, Peoria & Warsaw.

The Receiver, Mr. A. L. Hopkins, reports to the court for August and September as follows:

Balance Aug. 1.....	\$885 29
Freight accounts.....	225,636 82
Passenger accounts.....	132,703 52
Car service accounts.....	24,783 93
Miscellaneous accounts.....	14,009 39
Total.....	\$398,000 95
Freight and ticket accounts.....	\$48,431 50
Car service.....	34,373 05
Rents and bridge tolls.....	12,415 01
Pay-rolls.....	194,167 40
Operating vouchers.....	159,221 56
Miscellaneous.....	24,043 55
	382,557 07
Balance, Oct. 1.....	\$15,443 88

The receipts were \$14,558.59 in excess of the disbursements for the two months.

ANNUAL REPORTS.

East Tennessee, Virginia & Georgia.

This company owns and works a line from Bristol, Tenn., southwest to Chattanooga, 242 miles, with a branch from Cleveland, Tenn., 30 miles east of Chattanooga, south to Dalton, Ga., 28 miles, making 270 miles in all. The company also owns the Cincinnati, Cumberland Gap & Charleston road, from Morristown, Tenn., southeast to Wolf Creek, 40 miles, but its operations, we believe, are not included. The following is from the President's report for the year ending June 30, 1876.

The general account of the company, in condensed form, is as follows:

Capital stock (\$7,200 per mile).....	\$1,068,274 00
Bonded debt.....	\$4,208,400 00
Less cost of Morristown Branch.....	\$217,678 53
Less cost of \$229,000 Western North Carolina bonds.....	204,801 96
	422,477 49
Balance (\$14,022 per mile).....	3,785,922 51

Total (\$21,312 per mile).....\$5,754,196 51

There is no floating debt, cash and balances due considerably exceeding the small amounts due by the company. During the year \$3,500 income bonds due March 1, 1876, were paid and canceled, and \$3,000 State endorsed bonds were paid from the sinking fund; \$10,000 first-mortgage bonds were sold, showing a net increase of \$3,500 in the bonded debt. Since the close of the year \$135,400 East Tennessee & Georgia old bonds, which matured July 1, 1876, have been paid. The notes, amounting to \$213,984.27, received in settlement of claims against the Western North Carolina Company have been settled by the transfer of \$229,000 bonds of that company. Additions to road and equipment accounts for the year were \$2,675.08 for real estate, \$2,597 for one-third cost of car-lifter at Lynchburg, Va., and \$19,391.61 for two new sleeping cars, Leighton's patent.

The earnings and expenses for the year were as follows:

	1875-76.	1874-75.	Inc. or Dec.	P. c.
Passengers.....	\$334,025 19	\$314,247 71	Inc.	\$20,777 48 6.5
Freight.....	635,974 08	670,355 40	Dec.	\$34,381 32 5.1
Mail, express, etc.....	88,355 55	75,382 54	Inc.	12,973 01 17.2

Total earnings.....	\$1,058,954 82	\$1,059,985 65	Dec.	\$1,030 83 0.1
Expenses.....	715,394 98	717,522 83	Dec.	2,127 85 0.3
Net earnings.....	\$343,559 84	\$342,462 82	Inc.	\$1,097 02 0.3

Gross earnings per mile.....	3,922 05	3,925 87	Dec.	3.92 0.3
Net earnings per mile.....	1,272 44	1,268 38	Inc.	4.06 0.3
Per cent. of exps.....	67.85	67.69	Dec.	0.14 ...

Although there were considerable changes in freight and passenger business, the general result is practically unchanged. There were included in expenses \$14,516.85 for taxes and the following for renewals and betterments:

For re-rolling rails and for new iron rails and fastenings.....	\$107,835 32
For 78,435 new ties laid in track.....	27,390 10
For 64 miles broken stone ballast.....	9,218 00
For new cars and renewals of cars.....	22,130 00
For four new locomotive boilers.....	10,844 01

Total renewals and betterments.....\$177,457 43

The income account for the year was as follows:

Net earnings.....	\$343,559 84
Interest on \$229,000 Western North Carolina bonds.....	16,030 00
Total.....	\$359,589 84
Interest and exchange.....	\$280,512 09
Dividend of 3 per cent., paid April 1, 1876.....	55,901 25
	336,413 34

Balance, surplus.....\$20,176 50

The President's report says: "Under the circumstances your board regards the results of the year's operations as satisfactory, notwithstanding the fact of its inability to divide more than one dividend after applying the amounts to renewals, betterments, etc., as previously stated. It is scarcely necessary to revert to the causes which have operated to keep down the income, as these are in the main familiar to you. It may be proper, however, to mention that, in addition to the commercial depression which has resulted so generally and disastrously to the railroad traffic, the effects of the undue competition existing between what are known as the trunk lines has operated to greatly reduce our earnings, and hence the year's income does not show such an increase, when compared with the former year, as would otherwise have been the case."

"The physical condition of the property has been considerably improved by the expenditures made and charged in the operating expenses. This appreciation in the value of the property has been accomplished without increasing the indebtedness."

"The board believes that a wise policy indicates the propriety of continuing to make such expenditures for rails and ballasting, from year to year, and as rapidly as the means of

the company will permit, as may be required to bring the property up to the standard of a first-class railroad. Contracts have been made for the purchase and re-rolling of about 37 miles of steel and iron rails, which will come into the expenses of the ensuing fiscal year. It is estimated that a continuance of the present rate of expenditures for renewals for about three years more will fully suffice to restore the deterioration of the rails which accrued mainly before the consolidation of the roads, and was not, up to that date, annually replaced; and that thereafter it will not be necessary to make such heavy expenditure in order to maintain the physical condition of the property up to the standard of a first-class railway."

"Work is progressing rather slowly on the Western North Carolina road, but perhaps as rapidly as the means at its disposal will admit of. The State of North Carolina being the owner of three-fourths of the capital stock of that company, and its early completion to Paint Rock (where it will connect with the Morristown Branch), being a matter of vital interest to her citizens, both political parties stand pledged in their platforms to extend such further aid from the State as will insure its early completion; and it is hoped that favorable action will be had by the Legislature, which meets next month, under which the road will be pushed forward rapidly. We take pleasure in alluding to the rapid progress which is being made in the construction of the Spartanburg & Asheville line."

"We are advised that the grading of the entire road is under contract, and that it will probably be completed to Asheville by the time, or before the line to Paint Rock is finished. This will give a direct connection with the South Carolina system of roads, scarcely less important than the much desired connection with the roads of the North Carolina system; and when these outlets are opened to the business of this section the Morristown Branch will then constitute a valuable portion of your line, and the business of the company will, as your board believe, be materially increased, and especially its net income."

The Miner Pennsylvania Railroads in 1875.

The following figures are from the reports made to the Secretary of Internal Affairs for the year 1875, and include all those roads which do not otherwise report. The mileage, stock and debt were as follows:

	Miles track of road and sidings.	Stock.	Funded debt.	Floating debt.
Bachman Valley.....	9.00 0.21	\$66,792	\$46,000	.....
Barclay.....	15.53 6.00	1,000,000	15,000	.....
Bellefonte & Snow Shoe.....	21.02 3.75	800,000	99,000	.....
Bell's Gap.....	8.40 0.97	200,000	200,000	.....
Catawqua & Fogelsville.....	20.80 8.00	436,900	.....	.....
Cornwall.....	7.47 2.50	300,000	.....	.....
Delaware & Hudson.....	53.26 6.50	.....	.....	.....
East Broad Top.....	30.00 5.31	505,760	500,000	43,045
Hanover Junction, Hanover & Gettysburg.....	30.00 2.50	116,850	157,900	43,282
Harrisburg & Potomac.....	16.00 2.50	251,000	252,000	35,010
Iron-ton.....	11.00 1.00	200,000	200,000	5,288
Lawrenceville & Evergreen.....	2.61 0.08	10,000	12,500	848
Little Saw Mill Run.....	3.00 1.00	100,000	80,000	8,888
McKean & Buffalo.....	22.15 2.45	387,600	352,000	101,612
Montrose.....	27.00 1.00	207,184	44,900	200
Muncy Creek.....	7.00 0.50	124,100	.....	.....
New Castle & Franklin.....	36.25 1.50	331,500	480,000	190,463
Parker & Karna City.....	10.50 1.00	150,000	65,000	55,217
Peach Bottom.....	45.00 1.50	209,653	360,400	92,611
Philadelphia & Baltimore Central.....	46.00 6.50	220,606	1,600,000	.....
Pittsburgh, Virginia & Charleston.....	30.00 12.71	675,620	1,308,000	108,093
Pittsburgh & Castle Shannon.....	6.00 0.87	621,782	297,178	102,238
Salisbury.....	2.40 0.37	70,800	40,000	24
Sharpsville, Wheatland, Sharon & Greenfield.....	4.00 0.25	64,100	.....	12,010
Shenango & Allegheny.....	38.00 6.38	200,000	800,000	368,578
Spring Brook.....	8.50 0.25	37,800	15,000	6,500
State Line & Sullivan.....	24.00 1.75	397,650	100,000	.....
Summit Branch.....	20.00 10.25	9,007,600	800,000	.....
Wilmington & Reading.....	63.60 10.30	759,628	3,098,800	335,306

Of these the Bell's Gap, the East Broad Top, the Lawrenceville & Evergreen, the Montrose, the Parker & Karna City, the Peach Bottom and the Sharpsville, Wheatland, Sharon & Greenfield are of 3 ft. gauge; the Pittsburgh & Castle Shannon, 3 ft. 4 in.; the Harrisburg & Potomac, 4 ft. 2 in.; the Spring Brook, 4 ft. 3 in.; while the Delaware & Hudson has three gauges, 4 ft. 3 in., 4 ft. 8 1/2 in., and 6 ft. The others are of the standard gauge. The Barclay, the Bellefonte & Snow Shoe, the East Broad Top, the Pittsburgh & Castle Shannon, the State Line & Sullivan and the Summit Branch have considerable amounts invested in coal lands and mines, besides the road and equipment. The Delaware & Hudson is owned by the Delaware & Hudson Canal Company, which makes no separate statement of capital invested in the road.

The equipment and work done for the year were as follows:

	Engines.	Pass. and freight cars.	Freight cars.	Train mileage.	Passengers carried.	Tons freight carried.
Bachman Valley.....	5	3	371	49,764	12,502	377,653
Barclay.....	5	2	93	58,747	12,482	93,477
Bellefonte & Snow Shoe.....	2	2	78	27,600	4,715	71,897
Catawqua & Fogelsville.....	5	5	656	48,828	10,984	230,167
Cornwall.....	3	..	157	9,843	.....	220,662
Delaware & Hudson.....	63	11	4,237	697,475	186,047	2,606,710
East Broad Top.....	6	3	144	67,493	33,130	79,841
Hanover Junction, Hanover & Gettysburg.....	8	8	44	70,100	51,625	95,434
Harrisburg & Potomac.....	1	1	6	13,872	6,904	26,833
Iron-ton.....	2	..	.....	10,016	.....	60,242
Lawrenceville & Evergreen.....	1	1	1	18,250	52,114	134
Little Saw Mill Run.....	3	1	66	14,292	12,627	80,512
McKean & Buffalo.....	2	2	.....	16,806	11,233	35,210
Montrose.....	2	3	14	35,056	14,666	9,924
Muncy Creek.....	2	1	.....	.....	8,898	.....
New Castle & Franklin.....	3	2	15	57,000	35,758	11,370
Parker & Karna City.....	4	7	46	74,000	116,000	18,816
Peach Bottom.....	4	5	32	.....	.....	.....
Philadelphia & Baltimore Central.....	10	11	97	157,209	253,907	138,899
Pittsburgh, Virginia & Charleston.....	5	9	75	112,437	249,606	86,497
Pittsburgh & Castle Shannon.....	6	7	418	48,000	107,694	106,190
Salisbury.....	1	10	4	.....	.....	.....
Sharpsville, Wheatland, Sharon & Greenfield.....	1	..	33	3,024	.....	10,135
Shenango & Allegheny.....	2	3	57	.....	22,365	264,092
Spring Brook.....	1	..	.....	4,700	.....	12,000
State Line & Sullivan.....	7	1	8	13,960	22,862	676,219
Summit Branch.....	11	11	144	169,020	90,804	246,361
Wilmington & Reading.....	11	11	144	169,020	90,804	246,361

On the State Line & Sullivan train service is hired from the

Pennsylvania & New York Company; on the Bachman Valley it is furnished by the Hanover Junction, Hanover & Gettysburg. Passenger and tonnage mileage are not reported. The Delaware & Hudson equipment includes 30 stationary engines used to work inclined planes.

The earnings and expenses were as follows:

	Earnings.	Expenses.	Net earnings.	Earn. p. of mile.	Exp. p. of mile.
Bachman Valley.....	\$6,921	\$3,833	\$3,088	\$669	42.32
Barclay.....	48,221	23,224	24,997	504	198.40
Bellefonte & Snow Shoe.....	243,677	59,510	184,167	4,541	48.87
Bell's Gap.....	39,145	18,508	20,637	516	48.87
Catsaqua & Fogelsville.....	80,229	52,312	27,917	4,006	65.10
Cornwall.....	47,438	17,700	29,738	6,350	37.34
Delaware & Hudson.....	1,050,685	770,455	280,231	19,737	73.33
East Broad Top.....	67,619	39,709	27,910	2,354	59.74
Hanover Junction, Hanover & Gettysburg.....	79,808	47,821	31,987	2,680	59.90
Harrisburg & Pottsville.....	9,223	6,256	2,967	614	63.84
Ironton.....	28,995	17,381	11,614	2,636	59.93
Lawrenceville & Eversgreen.....	3,505	3,468	37	1,343	90.09
Little Saw Mill Run.....	43,147	36,037	7,110	14,382	83.61
McKean & Buffalo.....	26,819	25,209	1,610	1,166	97.71
Montrose.....	22,450	13,751	8,699	851	61.12
Muncy Creek.....	9,152	.....	.....	1,308	.....
New Castle & Franklinton.....	39,226	25,716	13,510	1,101	64.45
Parker & Kama City.....	102,333	40,669	61,664	9,740	48.85
Peach Bottom.....	.....	.....	.....	.....	.....
Philadelphia & Baltimore Central.....	284,028	184,796	99,232	6,174	65.07
Pittsburgh, Virginia & Charleston.....	123,594	87,751	35,843	4,120	71.00
Pittsburgh & Castle Shannon.....	375,930	64,535	311,395	.....	.....
Salisbury.....	.....	.....	.....	.....	.....
Sharpsville, Wheatland, Sharon & Greenfield.....	2,026	1,833	193	507	91.65
Shenango & Allegheny Spring Brook.....	201,040	86,341	114,699	5,291	42.96
State Line & Sullivan Summit Branch.....	14,998	53,377	38,379	922	368.20
Wilmington & Reading.....	349,117	92,875	256,242	17,456	26.52
.....	197,776	174,763	23,014	3,110	88.38

* Deficit.

The Bellefonte & Snow Shoe and the Pittsburgh & Castle Shannon include receipts from coal mined. The McKean & Buffalo road was worked only seven months of the year, not having been completed until June. Dividends were paid by the Barclay Company, 8 per cent.; Bellefonte & Snow Shoe, 3 per cent.; Catsaqua & Fogelsville, 6 per cent.; Cornwall, 9 per cent.; Hanover Junction, Hanover & Gettysburg, 5 per cent.; none of the other companies paying any dividend.

Portland & Rochester.

This company owns and works a line from Portland, Me., southwest to Rochester, N. H., 52.5 miles. The present report covers the year ending Aug. 31.

The general account is as follows:

Capital stock (\$12,116 per mile).....	\$636,111 85
Company's bonds (\$6,058 per mile).....	350,000 00
Portland City bonds (\$21,505 per mile).....	1,150,000 00
Bills payable and balances due.....	40,192 72
Total (\$41,402 per mile).....	\$2,176,244 57

For some time past the company has been unable to pay interest on the Portland City bonds, which have been provided for by the city, and on Oct. 1 last it failed to pay the coupons then due upon its own bonds. The debt of the company on Aug. 31 is thus stated:

Portland City bonds, principal.....	\$1,150,000 00
" " interest, funded.....	172,500 00
" " " unfunded.....	4,140 00
" " due sinking fund.....	41,500 00
Total.....	\$1,368,140 00
Deduct sinking fund, Aug. 31.....	70,911 18
Balance due city of Portland.....	\$1,297,228 82
Company's bonds.....	350,000 00
Floating debt, less cash on hand and balances due.....	67,685 00

Total debt (\$32,665 per mile)..... \$1,714,913 82
This is increasing continually as interest accrues.

The earnings for the year were as follows:

	1875-76.	1874-75.	Inc. or Dec.	P. c.
Passengers.....	\$60,167 12	\$61,229 91	Dec.	\$1,062 79 1.7
Freight.....	72,973 09	85,528 48	Dec.	12,555 39 15.7
Express, mail, etc.....	5,129 59	6,172 29	Dec.	1,042 70 16.8
Total.....	\$138,269 80	\$152,930 68	Dec.	\$14,660 88 10.3
Expenses and taxes.....	107,208 25	120,271 10	Dec.	13,062 85 10.9
Net earnings.....	\$31,061 55	\$32,659 58	Dec.	\$1,598 03 7.7
Gross earn. per mile.....	2,633 71	2,922 01	Dec.	198 30 10.2
Net " " ".....	591 73	641 13	Dec.	49 40 7.7
Per cent. of expenses.....	77.53	78.13	Dec.	0.6 0.6

The earnings have steadily decreased for several years, and no benefit has apparently resulted from the completion of the Nashua & Rochester road, which was expected to bring a large increase of business. The net earnings for the last year were 1.81 per cent. only on the total amount of funded and floating debt.

The income account was as follows for the year:

Net earnings.....	\$31,061 55
Materials on hand.....	10,721 50
Total.....	\$41,783 05
Interest on floating debt.....	\$2,079 08
Materials on hand Sept. 1.....	6,172 05
Unpaid bills for materials.....	11,473 75
Total.....	19,724 88
Balance.....	\$22,058 17

The report says: "Our freight receipts have fallen off \$13,555.39, and the tonnage of freight hauled is 9,830 tons less than last year. This loss of business may be accounted for, in part, by the general stagnation of all branches of trade and manufacturing industries, but more especially by the continued depression in the lumber trade, from which your road has in years past derived the larger part of its business. There has been a large reduction of tariff rates over the line of your road, which has been made necessary, so far as it relates to through traffic, to meet the competition which has been carried on between the Boston & Maine and Eastern roads. They have been sharp competitors for the business of our State. "Your directors have been unable to make the payments of interest due under the agreement with the city, and inasmuch as the road has failed, up to this time, to make the anticipated increase in its earnings, they believe that in the present condition of business there is no prospect that it can earn, within the time specified, the amount required to enable them, at the expiration of the agreement, to resume the payment of the interest on the city bonds. "The floating debt of the company now amounts to more than \$67,000 and it will be further increased by any and all

sums paid for interest, as the receipts of the road are but little more than equal to the payment of the operating expenses, the small surplus being required for renewals of bridges, tracks, &c., which must be kept up at any cost."

RAILROAD LAW.

Texas General Railroad Law.

The Texas Legislature has passed a general railroad law, the provisions of which are as follows:

Section 1 provides that any number of persons not less than ten may organize a company, and be incorporated when not less than \$1,000 per mile has been subscribed to the stock and 5 per cent. paid in.

Section 2 provides that the incorporation shall be had by preparing and signing articles of incorporation, which shall be submitted to the Attorney General. If correct he shall so certify and cause them to be recorded by the Secretary of State and in the Recorder's office of each county through which the road is to run.

Section 3 provides that the articles shall set forth name of company, terminal and intermediate points of road, location of principal office, time of continuance, amount of stock fixed, names and residences of incorporators, names of first directors and officers and number and amount of shares, with affidavit of three directors that amounts required in Section 1 have been subscribed and paid in.

Section 4 provides that on recording the articles the company shall become a legal corporation with all the usual powers.

Section 5 provides that the existence of the company shall date from recording of articles by the Secretary of State. Corporations formed under this act or by special charter shall have power to change the charter, provided that such change shall not relieve them from building depots in or near the towns named in the original articles or charter.

Section 6 provides that companies shall have the right to buy or receive donations of land and dispose of the same in the same way as lands donated by the State.

Section 7 provides that companies may build branches, provided they are such as would not, if owned by others, be parallel or competing lines within the meaning of the Constitution.

Section 8 provides that corporations shall not continue more than 50 years, but may be renewed for a like period, provided three-fourths of the stockholders agree and also buy the stock owned by those opposed to renewal.

Section 9 provides that by-laws and amendments shall be recorded as provided for original articles.

Section 10 requires companies to keep a public office at one terminus of the road, where stock transfers shall be made and books kept showing ownership of stock.

Section 11 vests usual powers in board to consist of not less than seven or more than nine directors.

Section 12 provides that special meetings may be called by two-thirds of stock on 90 days' notice in newspapers in counties on the line.

Section 13 requires officers to make statements of company's affairs at annual meetings and at special meetings if called for.

Section 14 provides that annual election may be postponed for not more than 90 days; a majority of all the stock is required to elect directors and a majority of directors shall be residents of Texas.

Section 15 provides that directors shall elect a President from their number and such other officers as may be required; a majority vote to elect.

Section 16 gives power to levy assessments and sell delinquent stock.

Section 17 prohibits a company from purchasing its own stock or that of another company. Lateral or branch roads may, however, consolidate with main line.

Section 18 provides for increase of stock, if required to complete road, by vote of stockholders at special meeting on 60 days' notice.

Section 19 provides that executors or trustees holding stock or persons holding stock as collateral shall not be personally liable.

Section 20 provides for liability of stockholders to creditors to the amount unpaid on their stock.

Sections 21, 22 and 23 provide for condemnation of land required for road, also for acquiring earth, gravel, timber, etc., required from adjacent land; gives power to make surveys, sell lands not needed, to cut down trees that may endanger road or trains, to cross water-courses, roads, or other railroads, with usual powers for operating roads. Companies may borrow money, mortgage their property and issue bonds on vote of two-thirds of the stock.

Section 24 provides that equipment and all movable property shall be considered personal property.

Section 25 forbids issue of stock or bonds except for money, labor or property used for construction or operation of road.

Section 26 repeats the constitutional provision forbidding consolidation of parallel or competing lines.

Section 27 requires companies to make a full annual report and statement to the Governor or Comptroller of the State.

Section 28 reserves power to the Legislature to regulate rates and prevent abuses or discriminations.

Section 29 provides the usual mode of electing directors by stockholders.

Section 30 provides for permanent rates, which, if recorded, shall not be changed.

Section 31 imposes forfeiture of franchise if 10 miles are not completed in two years from organization and 70 miles each two years thereafter.

Section 32 provides that the legal domicile of the company is to be within the State. The act is to go into effect 90 days from Aug. 31, 1876.

Measure of Land Damages.

In Bunnell against the Pennsylvania & New York Canal & Railroad Company, the Pennsylvania Supreme Court held:

1. The measure of damages for land taken by a railroad is the difference between the market value of the property before and after the construction of the road, so far as that difference was caused by the construction.

2. A witness may be asked whether the location of a railroad has been an advantage or disadvantage to the plaintiff's land. Evidence of the price paid for land in the neighborhood is inadmissible.

3. The removal of the post office to a nearer location is not competent evidence of benefit.

4. The plaintiff may show that before the construction of the road he had a convenient method of transporting the farm products by the defendant's canal, which ran through his farm.

Railway Mortgages—What Claims are Prior Liens.

The great number of railway mortgages which are now being foreclosed in the various courts throughout the country—State and federal—has given general interest to the question. What debts of a railway company are entitled to the status of liens or preferred claims? An impression seems to have got afloat that Judge Dillon has, in some case or cases which have arisen in the eighth federal circuit, acted upon the principle that debts contracted by railway companies in such cases within six months of the commencement of foreclosure proceedings should be paid, in case such debts were contracted for supplies, the services of regular employees, or for carrying done by connecting railway lines. We understand, however,

that this is a mistaken impression, and that no such principle has been adopted. Indeed, it is difficult to see how it could be adopted in view of the principles laid down in the case of the Galveston Railroad v. Cowdrey, 11 Wallace, 489. In that case, the Supreme Court of the United States, in the absence of a statutory lien law applicable to the contract in question, denied prior payment to a contractor who had furnished iron which actually went into the road, and distinctly enunciated the principle that the rule *qui prior est in tempore, potior est in jure* is applicable to such cases. It is true that in the case of Ketchum v. The Pacific Railroad and Littlefield v. The Atlantic & Pacific Railroad now pending in the United States Circuit Court for the Eastern District of Missouri, and also, as we are informed, in other suits to foreclose railway mortgages which have arisen in the eighth federal circuit, claims for supplies and for wages have been allowed priority of payment; but this has only been done by consent of all the parties in interest. It is easy to see that the establishment of a rule giving priority to such claims, as a matter of law, would seriously impair the security of railway mortgages. This novel species of lien has been called by some an "equitable lien," and by others it has been facetiously denominated an "admiralty lien on wheels." Such a lien or priority was declared to exist by a *visi prius* judge at Richmond, Va., in the case of Duncan et al. v. Trustees, etc., Chesapeake & Ohio Railroad, ante, p. 579; and also by the Court of Appeals of Kentucky in the case of Douglas et al. v. Cline. In the latter case Cofer, J., dissented in an opinion of great length. These cases both related to the wages due the regular employees of the defendant railway company. In the former case, these wages accrued entirely after default of the railway company in paying the interest due on its bonded indebtedness; and, in the latter case, most of the wages accrued after a similar default had been made. There was, therefore, much reason in holding that when the employees of a railway company continued in their employment after the insolvency of the company had become notorious, and thereby preserved the mortgaged property and kept it in operation for the benefit of the public, a court of equity would not allow their demands to be obliterated by the foreclosure proceedings. The Virginia court placed its decision upon the ground that the employees in continuing in service after such default, and after the beneficiaries under the mortgage had acquired the right to enter and take possession of the property and operate it for themselves, became, in effect, tenants at will of the bondholders. The Kentucky court declared that the case was one within the operation of the rule that he who seeks equity must do equity. The mortgages had the power under the mortgage to enter upon the property after default by their trustees, and use, operate or sell it for the purpose of satisfying their demands. But instead of doing this, they had asked a court of equity to exercise the extraordinary power of taking the mortgaged property, *pendente lite*, out of the hands of its owners, and operating it for their benefit. In doing this they submitted to the power of the court to do equity by ordering payment to be made out of net earnings which had accrued in the hands of the receivers to the officers and employees of the defaulting corporation.

In the case of Ketchum v. The Pacific Railroad above referred to, an attempt was recently made to make an interesting application of this new kind of equitable lien. The Atlantic & Pacific Railroad Company, lessors of the Pacific Railroad of Missouri, had, before the institution of proceedings to foreclose mortgages on both roads, become indebted to the Atchison & Nebraska Railroad Company on account of services rendered by that company, in carrying freight and passengers on "through" bills of lading and "through" tickets. This company intervened in the suit named, and asked payment in preference to the bondholders, on the ground that the claim was similar in its nature to the claims of employees for their wages, and also on the ground that the proportion of freight and passage money earned by the petitioning railway company under the contracts in question had been collected in advance by the Atlantic & Pacific Railroad Company, and was in the nature of a trust fund held by the latter company for the benefit of the former, which fund, on the appointment of the receivers, passed into their hands charged with the trust. The case was argued before a master by Hon. Willard P. Hall on behalf of the petitioner, and by George W. Cline, Esq., on behalf of the bondholders. The master reported adversely to the claim, on the ground that it was a mere debt at large of the Atlantic & Pacific Railroad Company, and this report was, after argument before Treat, J., confirmed.

A similar question was raised and argued before the master in the case of Littlefield v. The Atlantic & Pacific Railroad Company, in what is known as a "pooling" contract entered into between the Missouri River, Fort Scott & Gulf Railroad Company, the petitioning claimant, and the defendant railroad. The master reported adversely to the claimant on the ground taken in his report in the previous case, and the counsel for the petitioner, having ascertained that the views of Judge Dillon were in accord with the views of Judge Treat upon this subject, did not except to the report.—*Central Law Journal*.

Master Mechanics' Association Circular of Inquiry.

The Committee appointed by the American Railway Master Mechanics' Association to report on the "Purification of Feed Water and Formation of Boiler Incrustations," present the following questions:

Effect of Incrustations on Consumption of Fuel.

1st. How many miles per ton of coal do engines with clean boilers average on your road?
2d. How many miles per ton with boilers from which incrustations have not been removed?
3d. What do you estimate the loss to be in money, per year, for fuel used on account of formation of scale in boilers on your road?

Effect on Life of Furnace Sheets and Outside Shell, and of Flues.

1st. To what extent, in your opinion, is the life of a copper, iron, or steel furnace shortened by the formation of scale in boilers on your road?
2d. To what extent is the life of flues shortened by the same cause?
3d. In what manner do incrustations affect the sheets in outside shell of boiler, and to what extent is the service of such sheets lessened by the action of incrustation?

Remedies and Their Cost.

1st. What is the cost per engine, per year, on your road, for removing the incrustations from locomotive boilers?
2d. What so-called "anti-incrustators" and boiler compounds have you tried for removal or prevention of boiler incrustations?

3d. Have any proved successful; and if so, what are they?
4th. What does it cost per engine, per year, to use those which proved beneficial?

5th. Have you tried any plan for purifying feed water for locomotive boilers, and if so, please describe it, and state the cost of the process per 1,000 gallons of water purified?

Please reply before March 1, 1877, addressing the Chairman of the Committee, E. T. JEFFERY, Assistant Superintendent of Machinery, Illinois Central Railroad, Chicago, Ill.

E. T. JEFFERY, Illinois Central R. R.
H. L. COOPER, L. & W. R. R.
J. C. WILLIS, T. & W. R. R.
Committee.